KAWAI

X40-D

Owner's Manual

Thank you for your purchase of a KAWAI X40-D Personal Keyboard.

How To Use This Manual

This manual is divided into three sections: Basic Operation, Advanced Operation, and Multimedia Operation.

The Basic Operation section will help you become familiar with the basic, but extremely powerful features of the X40-D. By the time you're through with this first section, you will have a clear understanding of how to select tones and accompaniment styles, adjust tempo, use the auto-accompaniment and recorder functions, and operate Kawai's exclusive ONE FINGER AD-LIB.

The Advanced Operation section will help you explore the X40-D's more advanced features such as combining tones, adding effects, using MIDI, and programming accompaniments or ONE FINGER AD-LIB phrases.

The Multimedia Operation section will help you get started using your X40-D in a multimedia computer environment.

To get the most from your new X40-D, please read this entire manual carefully — beginning with the important information on page B-1.

Should you have any difficulty getting your keyboard to perform properly, turn first to the "Trouble-Shooting" section of this manual. If the solution is not found there, please refer to the Table of Contents (on the next page) and review the pertinent section of this instruction manual.

Have fun learning to play your X40-D!

■ Note:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

— Reorient or relocate the receiving antenna.
— Increase the separation between the equipment and receiver.
— Connect the equipment into an outlet on a different electrical circuit from the receiver.
— Consult the dealer or an experienced radio/TV technician for help.

■ This instrument complies with the limits for class B digital apparatus, pursuant to the Radio Interference Regulations, C.R.C., c. 1374.

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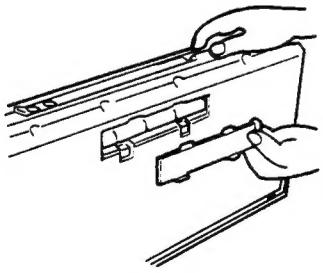
■ Before Using Your Keyboard

1. Cautions

- Do not subject the keyboard to severe shocks.
- Do not expose the keyboard to direct sunlight, or high temperatures (such as inside your car on a warm day).
- Do not use the keyboard where there is excessive moisture or dust.
- Do not disassemble or attempt to modify the keyboard.
- Should the keyboard become soiled, clean it using a soft, dry cloth. If this does not remove the stain, wet the cloth slightly before wiping. Never use alcohol or thinner to clean your keyboard.
- Do not allow foreign matter to enter the gaps between the keys or around the buttons.



2. Connecting the Power Supply

Your keyboard can use either your home AC power outlet or dry cell batteries as a power source.

■ **To insert batteries:**

1. Turn the unit over and remove the battery cover.
2. Insert six Size C dry cell batteries. Be sure they are aligned in the proper direction.
3. Replace the battery cover.

⚠ *As the batteries begin to run down, the volume of the keyboard will decrease and the sound quality will begin to change or deteriorate. The unit may begin to malfunction. At that time, you should replace all six batteries.*

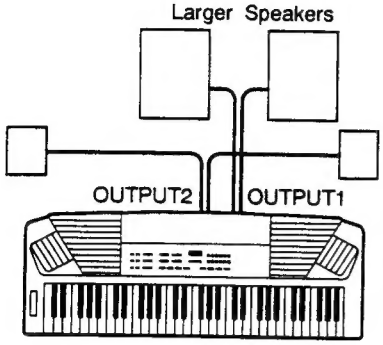
Do not mix battery types (or new batteries with old ones), as this may cause problems such as battery fluid leakage.

Remove the batteries when not using the keyboard for long periods of time.

■ **To Use An AC Power Outlet:**

Connect a PS-102 or PS-101 adaptor (available separately) to the adaptor terminal on the rear panel of the keyboard. Then, connect the adaptor to a wall socket.

⚠ *We recommend that you use a KAWAI AC adaptor (10-volt/1 Amp) with the X40-D. If you decide to use a universal adaptor from another manufacturer, please be sure of the following:*
(1) The voltage selector should be set at 10 volts.
(2) The polarity selector must be set to "negative" (−) polarity, otherwise the keyboard will not operate (or will run on batteries until the batteries are drained).
(3) The adaptor must be rated at 1 Amp (A).

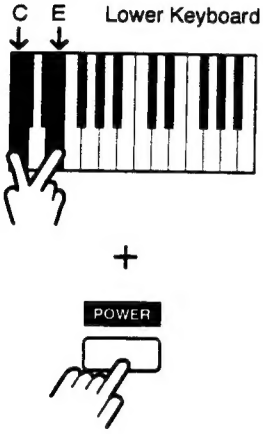


■ Where to Place Your X40-D Keyboard for Optimum Sound Quality

The X40-D's SUPER 3D Sound System consists of four multi-directional speakers. The two larger speakers are "ported" on the underside to project sound both downward and forward from the keyboard housing. TO MAXIMIZE THE SUPER 3D EFFECT AND ACHIEVE OPTIMUM OVERALL SOUND, PLACE YOUR X40-D ON A KEYBOARD STAND WHICH DOES NOT BLOCK THESE UNDERSIDE PORTS.

■ Connecting the Keyboard to an Audio Device

Your keyboard utilizes a carefully-crafted case, four multi-directional speakers and additional sound processing to create a richer, fuller sound than is possible with traditional stereo speakers. To enjoy listening to the sound of your X40-D through your amplified home stereo system or other external amplifier, purchase an adaptor plug at an electrical goods store or audio specialty shop. For normal stereo listening, use a set of cords to connect the keyboard's STEREO PHONES jack to the LINE IN or AUX IN jacks on your stereo amplifier or powered receiver. To create the full "SUPER 3D" sound effect, use one set of cords (with stereo RCA pins) to connect the keyboard's OUTPUT 1 jacks to the LINE IN or AUX IN jacks on your stereo amplifier or powered receiver and use another set of cords to connect the keyboard's OUTPUT 2 jacks to the LINE IN or AUX IN jacks on a separate amplifier or other stereo audio device.
We suggest you to connect the larger speakers to the keyboard's OUTPUT 1 jacks and connect smaller speakers to the keyboard's OUTPUT 2 jacks. Then, arrange the four speakers as shown in the illustration at left. This arrangement will help you experience the "Super 3D" effect more fully.



■ About the Keyboard's Internal Memory

The contents of the keyboard's internal memory (such as recorder data) will be kept stored for up to five years by a back-up battery built into the unit.
Note that if you turn the power switch ON while holding down keys C and E at the left end of the keyboard, all of the contents of the memory will be erased and the keyboard's factory settings will be restored. This is known as the "factory reset" procedure.

⚠ *You cannot back up the internal memory once the back-up battery has run out of power. So, we recommend that you save your important data into an external sequencer (see "Using the MIDI Functions" section). For a replacement back-up battery, contact an authorized KAWAI dealer.*

■ Protective Plastic Covering On Front Panel

Your keyboard comes equipped with a thin plastic covering over the front panel designed to protect the panel from dust and scratches. If you want to remove this covering, carefully use a fingernail to lift up one of the corners. Then, slowly peel off the covering and discard it.

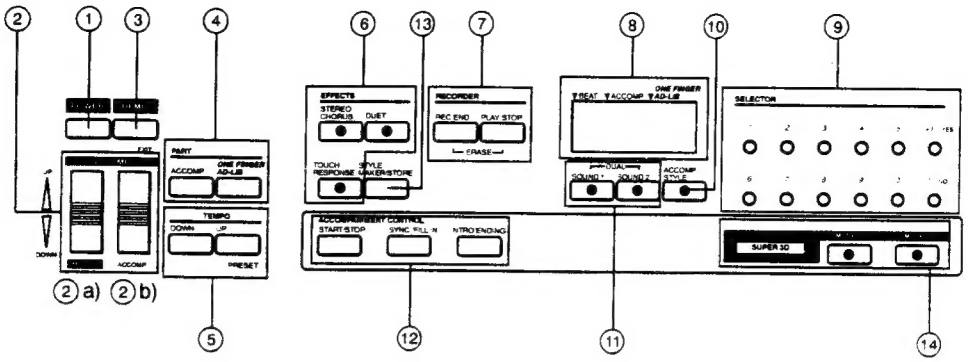
■ Trouble-Shooting On Your X40-D

Problem:	Check the following
The keyboard makes no sound.	1) Check your power adaptor. We recommend that you use a KAWAI 10-volt adaptor. 2) If using a universal adaptor from another manufacturer: – Is the voltage set at 10-volts? – Is it set to negative (−) polarity? – Is it rated above 1 Amp? 3) Have you tried six fresh batteries? 4) Are all the batteries aligned in the proper direction?

Problem:	Check the following
Some buttons do not light when you press them.	Not every button is designed to light up. Please refer to the "Overall Diagram and Explanation" on page B-4 of this manual to see which buttons are supposed to light up when you press them.
The keyboard buttons light but the keys don't play.	Check the SYSTEM/MIDI functions to make sure that the LOCAL mode is "on". If LOCAL mode gets turned "off" by mistake, the keys will not play.
The Touch Response feature does not work.	Make sure that the TOUCH RESPONSE button is lit. If not, press it.
Most of the buttons do not work.	Only the SELECTOR and SOUND 1/2 buttons will be active in GMStd mode. Select "Pro" MIDI mode to operate all buttons in normal fashion.
The front panel has a "cloudy" finish or has begun to "bubble" or "peel". This is not a defect.	There is a thin plastic film applied to the glossy panel (where the buttons are located) for protection during shipping. You can remove this film at any time. Use a fingernail to carefully lift up one of the edges, then peel off the protective film.
You are using the SELECTOR buttons to select a specific two-digit or three-digit number, but a lower number appears in the display.	You may be taking too long to enter the second or third digits. Once you enter the first digit, the keyboard waits for about one second to see if a second or third digit will follow. If the second or third digit is not entered within that one-second "waiting period", the keyboard assumes that you meant to enter a single-digit number only. Be sure to enter all two-digit and three-digit numbers in rapid succession.
When using the ONE FINGER AD-LIB feature, the sounds change by themselves.	This is normal operation. When you first activate ONE FINGER AD-LIB (OFA), specific sounds are pre-assigned to the OFA phrases. If you select a sound and then turn OFA "on", the pre-assigned sounds will appear. However, if you turn OFA on first and then select a sound, your new sound will be assigned to all the OFA phrases.
The accompaniment will not start when you press the START/STOP button.	The tempo may have been moved to SYNC mode, which deactivates the START/STOP button. To escape SYNC mode, press the TEMPO UP button until a number appears in the display. The accompaniment should now begin when you press the START/STOP button.
The RECORDER will not record.	The recorder will not record when there is already a song in memory. Use the ERASE procedure (press both the RED/END and PLAY/STOP buttons simultaneously) to clear the existing song. Then try recording again.
The RECORDER suddenly stops or will not record.	This usually happens when you have exceeded the RECORDER's memory capacity. Use the ERASE procedure above to clear the memory. Then, begin recording again.
The keyboard only plays drum sounds.	The DRUM SET sound (#129) has probably been selected. Use the SOUND 1 and SELECTOR buttons to select a different sound (refer to the "Selecting Sounds" section of the manual).
The AUTO function is not working properly.	Check to see if someone has set your keyboard to operate in AUTO 2 or AUTO 3 modes. These alternative modes are different from the normal AUTO 1 style of auto-accompaniment. (Please refer to the "Advanced Use of Auto-Accompaniment" section of this manual.)
The ONE FINGER AD-LIB feature will not work.	Check to see if someone has set your keyboard to operate in AUTO 2 of AUTO 3 modes. One Finger Ad-Lib will not operate when the keyboard is in one of these two modes.
The keyboard is not sending complete accompaniment note information via MIDI.	See the MIDI section of this manual. The ACCOMPANIMENT MIDI OUT function must be set to "on". Otherwise, the keyboard will only send "note" information (notes that are actually played) via MIDI.
The Sustain function will not work.	Sustain will not work with percussive sounds such as sound number 114 AGOGO or sound number 116 WOODBLOCK.

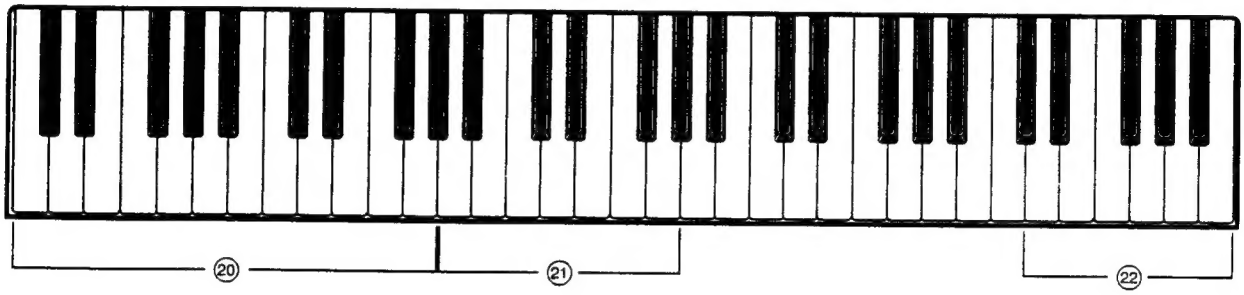
■ Overall Diagram and Explanation

Front Panel

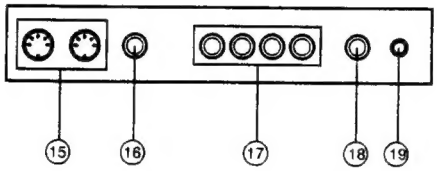


The buttons marked with "●" in the above illustration will light up when pressed. Buttons not marked with an "●" will not light when pressed.

Keyboard



Rear Panel



■ Operation panel

① **POWER** button
The POWER button turns the keyboard's power on and off. When the power is turned on, the display window will light, showing the number 001.

② **Volume Control** buttons
a) The Master Volume buttons control overall volume of all notes played on the keyboard.
b) The Accompaniment Volume buttons control the volume of the Accompaniment Styles only.

③ **Demo** button
Pressing this button starts the built-in demo song. Press it again at any time to stop the demo song.

④ **Part** buttons
Used to turn a specific part of auto-accompaniment or ONE FINGER AD-LIB part on or off.

⑤ **TEMPO** buttons
The TEMPO buttons can be used to control changes in auto-accompaniment tempo.

⑥ **EFFECTS** buttons
These buttons allow you to add variety to the keyboard's 129 sounds by adding effects such as Stereo Chorus and Duet Harmony.
The TOUCH RESPONSE button allows you to turn the touch response feature on or off.

⑦ **Recorder** Section
These buttons allow you to record the songs you write or perform on the keyboard.

⑧ **Display**
The display window shows which sound or style is currently selected. The window is also used to display a wide variety of other information which will be described later in this manual.

⑨ **SELECTOR** buttons
a) Numeric buttons (Ten keys)
Used to enter the numbers that appear in the LED display. To enter a number from 1 to 9, just press the number you desire. The keyboard will wait for about one second to see if you press another digit. After this brief pause, the display will show the number you selected (001 to 009). To enter a number between 1 and 9 without the one-second pause, enter two "zeros" before the number. For example, you would rapidly press "0-0-6" to select sound number "6" without a pause.

To enter a two- or three-digit number, press all the digits in rapid succession. For example, to enter sound number 025, press 2 followed quickly by 5. After a one-second pause, "025" will appear in the display. To avoid the pause, rapidly enter "0-2-5". The display will immediately read "025".

If you wait too long to enter the last digit ("5"), the keyboard will think you meant to select "2" and then changed your mind to select "5". The display will end up showing "005" instead of "025".
BE SURE TO ENTER ALL THE DIGITS OF THE DESIRED NUMBER IN RAPID SUCCESSION.

b) "−1/+1 buttons
These buttons are used to increase or decrease the numbers in the display window by a value of 1.

⑩ **ACCOMP. STYLE** button
This button is used when selecting from among the 100 Accompaniment Styles stored in the keyboard's memory.

⑪ **SOUND 1** and **SOUND 2** buttons
These buttons are used to select from among the 129 sounds available in the SOUND LIST.

⑫ **ACCOMPANIMENT CONTROL** button
These buttons allow you to control the "INTROs" (Introductions) that can be used to start a song, "FILL-INs" to add variety during a song, "ENDINGs" which finish a song, and "BASIC Patterns" which are the foundation of any song that uses auto-accompaniment. The "SYNC./FILL-IN" button lets you start your song at the exact moment you press a key in the Lower Keyboard.

⑬ **STYLE MAKER/STORE** button
This button allows you to create your own accompaniment styles and ONE FINGER AD-LIB phrases with the Style Maker feature.

⑭ **SUPER 3D** Section
These buttons allow you to select either of the two "modes" of SUPER 3D Sound.

■ Rear Panel

⑮ **MIDI IN/OUT** Jacks
These jacks are used to connect the keyboard to other MIDI instruments and equipment.

⑯ **PEDAL Jack**
This jack allows you to connect an optional footswitch (model F-1, available separately) to the keyboard. When the footswitch is depressed, notes played on the keyboard will be heard continuously for as long as the footswitch is held down (or until the natural decay of a sound reduces it to zero volume). It operates like a sustain pedal on a piano. (The pedal has no effect on auto-accompaniment performance.)
This jack can also be programmed to let an optional footswitch (model F-1, available separately) function in different ways. Refer to the "Using the SYSTEM Functions" for details.

⑰ **OUTPUT 1/OUTPUT 2 Jacks**
These jacks are used to send the keyboard's sound through an external amplifier or amplified home stereo system.

⑱ **STEREO PHONES Jack**
When stereo headphones are connected to this jack, the sound from the speakers is cut off. This allows you to play the keyboard at night and at other times when you might be concerned about disturbing others.

⑲ **DC IN Jack**
This jack is used to connect a Power Adaptor (Kawai PS-102 or PS-101) available separately.

⚠ *See page B-1 for special instructions if you are using a universal AC adaptor or other brand of adaptor.*

■ Keys

⑳ **Lower Keyboard (C1 – G#2)**
These are used to trigger chord forms when the auto-accompaniment function is selected.

㉑ **ONE FINGER AD-LIB Keys (A2 – G#3)**
These keys are used to play ONE FINGER AD-LIB phrases when the ONE FINGER AD-LIB function is selected.

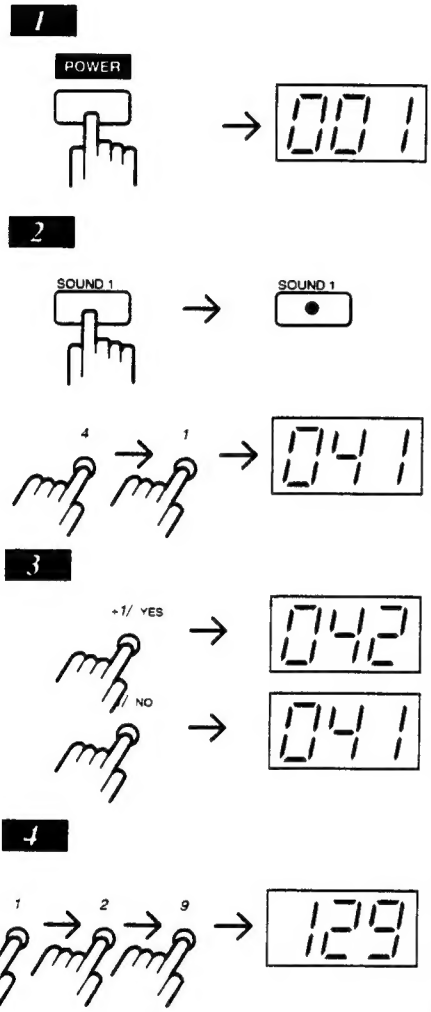
㉒ **User Program Keys (C#5 – C6)**
Used for programming auto-accompaniments (with Style Maker) and ONE FINGER AD-LIB phrases.

⚠ *Of course, the keys in the special keyboard sections named above also function as a normal keyboard when all automatic settings are off.*

⚠ *Throughout this manual, the keys will be referred to in the following manner:*
C1 stands for "the first C" on the keyboard, counting from the left.
B2 stands for "the second B" on the keyboard from the left.
The total range of your keyboard is C1 to C6.

■ Getting Started On Your X40-D

◆ Selecting Sounds



This section will show you how to select and play any of the 129 sounds listed in the SOUND LIST on the keyboard's front panel.

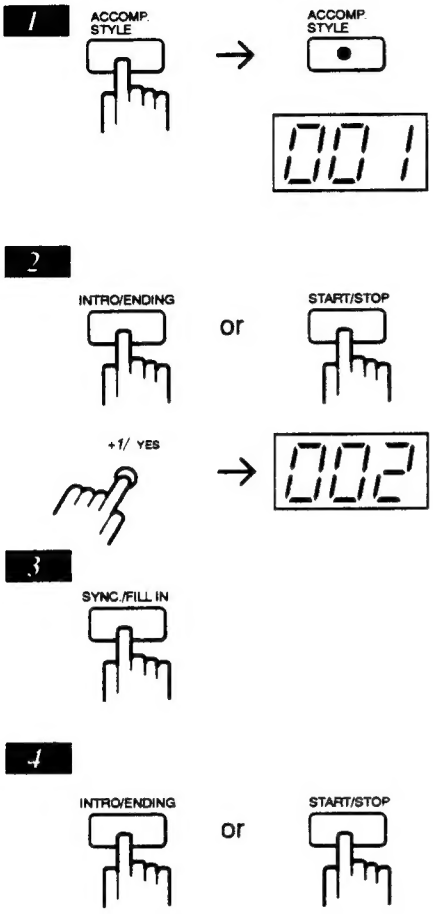
1. First, press the **POWER** button to turn the keyboard "on". Several buttons will light (like the SOUND 1 button). The display should also be lit, showing the number 001.
   Press one of the keys on the keyboard. You should hear the sound which is numbered 001 (GRAND PIANO). Your X40-D features Touch Response, which allows you to control the volume of each note by playing hard or soft.
   Try playing a few notes with varying force. You'll notice that the harder you strike the keys, the louder they will sound.
   The volume of the entire keyboard can be controlled with the MASTER VOLUME buttons. These buttons will not light.
2. Check to be sure that the **SOUND 1** button is lit (if not, press it now). Next, quickly press "**4**" and then "**1**" with the SELECTOR buttons to select sound number 041 (VIOLIN). The number in the display should change to read "041" after about one second.

   ⚠ *When you use the SELECTOR buttons to select a two-digit or three-digit number, enter all the numbers in rapid succession. A lower number will appear in the display if you take too long to enter the second or third digits.*
   The SELECTOR buttons will not light when you press them.

3. You can use the SELECTOR section to choose any of the keyboard's 129 sounds quickly and easily. The **+1** button adds "one" to the number in the display, while the **−1** button subtracts "one" from the displayed number. The number shown in the display is the number of the sound currently selected.
   Look at the SELECTOR section and find the button marked **+1**. When you press it, the number shown in the display should change to 042. When you press one of the keys on the keyboard, you will hear sound number 042 (VIOLA).
   Pressing the **−1** button in the SELECTOR section will bring you back to sound number 41 (VIOLIN).
4. Press "**1-2-9**" in rapid succesion to select sound number 129 "DRUM SET". When you press one of the keys on the keyboard, you will hear the sound of the instrument pictured above that key. Refer to page Ap-3 for the chart of drum assignments.

■ Getting Started with Accompaniment Styles

◆ Selecting Accompaniment Styles



This section will show you how to select and play any of the 100 Accompaniment Styles (which we will refer to as "Styles") listed in the STYLE LIST on the keyboard's front panel.

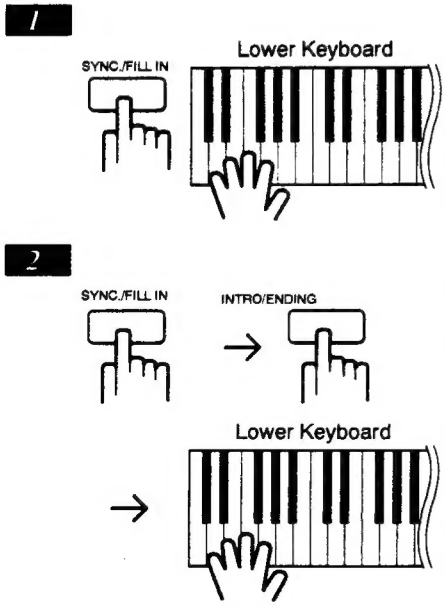
1. First, press the **ACCOMP. STYLE** button. The button will light and the display will change to read 001.
2. If you press the **INTRO/ENDING** button at this point, you will hear an introduction, followed by the BASIC Pattern for Style number 001 (JAZZ FUNK 1).

   To start the Style without the Intro, press the **START/STOP** button. Now, find the SELECTOR buttons and press the **+1** button. The display will change to read 002 and the Style will change to number 002 (JAZZ FUNK 2). You may use the SELECTOR buttons in this way to select any Style you desire. The number in the display will change to indicate the number of the Style currently selected.

   ⚠ *Not every button is designed to light up when pressed. Refer to the "Overall Diagram and Explanation" on page B-4 of this manual to see which buttons will light and which will not.*

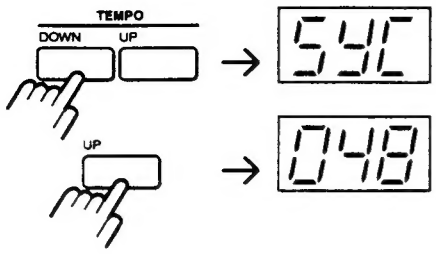
3. Try pressing the **"SYNC./FILL-IN"** button while the auto-accompaniment is playing. The keyboard will play a FILL-IN pattern suited to the Style currently selected. The FILL-IN feature can help to add variety within a song.
4. Next, press the **INTRO/ENDING** button. An "Ending" which matches the currently selected Style will play to finish the song. If you want the Style to end abruptly without the ENDING, simply press the **START/STOP** button.

◆ Using the SYNC Feature



1. If you press the **SYNC./FILL-IN** button while the accompaniment is off, the button functions as a **"SYNC."** button only. When the **SYNC./FILL-IN** button is pressed, the Style will begin to play the moment you press a key on the Lower Keyboard. The start of the Style will "synchronize" with your touch of the keyboard (thus, the abbreviation "SYNC").
2. If you want to start the accompaniment with your touch of the keyboard (as described above), but would rather have the accompaniment begin with an appropriate introduction, press the **SYNC./FILL-IN** button and then the **INTRO/ENDING** button. When you press a key on the Lower Keyboard, the INTRO will play first, followed by the BASIC Pattern.

◆ Changing Accompaniment Tempo



You can use the **TEMPO** buttons (which do not light) to change the tempo of any accompaniment. The **UP** button causes the tempo to increase. The **DOWN** button causes the tempo to decrease. The small lamp at the top left of the display (labelled BEAT) will blink in time with the current tempo. When you press either of the **TEMPO** buttons, the display will briefly show the current tempo.

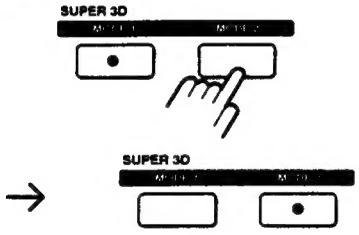
If you continue to press the Tempo **DOWN** button to minimum tempo, the display will change to read SYC which is an abbreviation for "SYNC" or "synchronized mode". This setting is a MIDI-related function which is discussed in the Advanced Operation section of this manual. The **START/STOP** button will not operate when this mode is activated. To escape SYNC mode, press the **TEMPO UP** button until a number appears in the display.

Pressing the **TEMPO UP** button within five seconds after selecting a new Style will change the tempo to a factory preset rate that suits the new Style.

■ Using the "SUPER 3D" Section

1

2



"SUPER 3D" is the Kawai's exclusive sound enhancement system which brings a new dimension of sound to the listener's ears — the third sonic dimension of "depth". The X40-D keyboard utilizes a carefully-crafted case, four multi-directional speakers and additional sound processing to create a richer, fuller sound than is possible with traditional stereo speakers.

You can choose between two types of the SUPER 3D modes – MODE 1 and MODE 2.

1. Select Style number "001" using the **ACCOMP. STYLE** button and the **SELECTOR** buttons. Now, look at the SUPER 3D section on the front panel of the keyboard.
   The MODE 1 button should be lit, indicating that MODE 1 is currently selected. Press the **START/STOP** button to begin the auto-accompaniment. You will be able to experience the musical richness of SUPER 3D MODE 1.
2. Press the **MODE 2** button. The MODE 1 button light will go off and the MODE 2 button will light up indicating that the MODE 2 is currently selected. You should hear different "positioning" of sound with MODE 2. To return to MODE 1, just press the **MODE 1** button.

⚠ *You can select only one SUPER 3D mode at a time. Both modes cannot be "on" simultaneously. Also, you cannot deactivate the SUPER 3D System.*

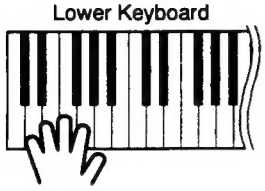
■ Using Auto-Accompaniment

The X40-D's auto-accompaniment (short for "automatic accompaniment") section is one of the most powerful found on any portable keyboard. It has the capability of working in three different "modes". In this Basic Operation section of the manual, however, we will deal only with the first mode called "AUTO 1". In AUTO 1 mode, you can control the chord and bass parts with your left hand while playing the melody with your right hand. Here's how AUTO 1 works:

◆ Explanation of AUTO 1

1

2



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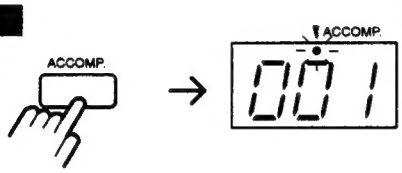

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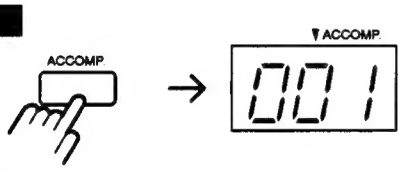

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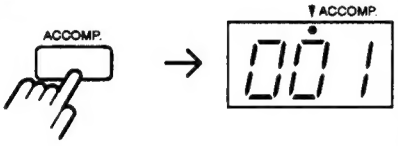


The AUTO 1 auto-accompaniment mode allows you to create a realistic "full band" performance by simply pressing and holding left hand chords as you play the melody. The 21 keys on the left side of the keyboard (which we call the Lower Keyboard) are used to play the chords which control the auto-accompaniment.

1. Select an Accompaniment Style (which we'll refer to as just "Style") using the **ACCOMP. STYLE** button and the **SELECTOR** buttons. Then, start the Style by pressing the **START/STOP** button.
2. Now press one or more of the keys on the Lower Keyboard. The auto-accompaniment chords will change as you press different keys. Your keyboard recognizes a wide variety of chords. See Page Ap-1 for a chart of these chords in the key of C and some valuable hints for beginners.

Single Finger Chord Mode

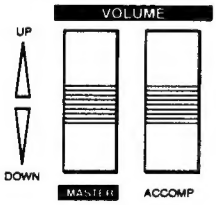
3. Then, press the **ACCOMP.** button (in the PART section) once. The small lamp at the top of the display (labelled ACCOMP.) will flash, indicating that you are in "Single Finger Chord" mode. This mode lets you play a complete chord by pressing one note in the Lower Keyboard. To try "Single Finger Chord" mode, use the START/STOP button to stop the auto-accompaniment. Then, hold down one note in the Lower Keyboard. You should hear a complete chord play.

   Note: There are actually three sounds which make up the "chord" part of an Accompaniment Style. In "Single Finger Chord" mode, only one of these sounds is used to play the chord.
4. Press the **START/STOP** button to resume the auto-accompaniment. Now, press the **ACCOMP.** button again. The small lamp at the top of the display (labelled ACCOMP.) will go off, and Bass and CHORD parts will be muted (only the Rhythm Part will play).
5. Press the **ACCOMP.** button one more time. The small lamp at the top of the display (labelled ACCOMP.) will light up and all the accompaniment parts will be restored.
6. Here is a summary of ACCOMP. button operation for the X40-D:

Accomp. lamp is lit:	All the auto-accompaniment parts will be played.
Accomp. lamp is flashing:	Single Finger Chord mode. You can play a chord with one finger in the Lower Keyboard when the auto-accompaniment is "off".
Accomp. lamp is not lit:	Only the Rhythm part will be heard.

The other two modes of auto-accompaniment are discussed in the Advanced Operation section of this manual.

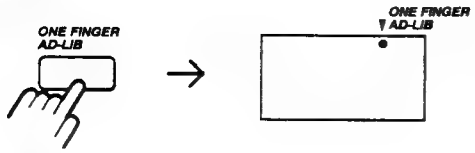
■ The Mixer Section



The **MASTER VOLUME** buttons (which do not light) control overall volume of all notes played on the keyboard. The volume of auto-accompaniment can be adjusted using the **ACCOMP. VOLUME** buttons (which do not light). The current volume for a specific part will appear briefly in the display each time a VOLUME button is pressed.

■ Using ONE FINGER AD-LIB To Play Like a "Pro"

1



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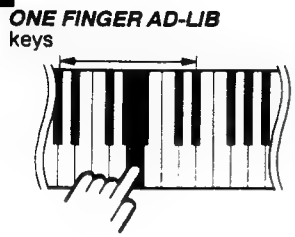


ONE FINGER AD-LIB is an exclusive Kawai feature which allows anyone (at any level of musical ability) to sound like a "pro". With the touch of a finger, you can play hundreds of impressive ad-lib melodies with full auto-accompaniment and chord progressions. ONE FINGER AD-LIB will make your keyboard immediately fun and "playable" for every member of your family (even the non-players)!

The ONE FINGER AD-LIB phrases are determined by the Accompaniment Style (or "Style") you select. For example, there are "funky" ad-lib phrases for Style number 007 (DISCO FUNK 1) and some exciting rock'n roll phrases for Style number 045 (R&R1).

How does ONE FINGER AD-LIB work?

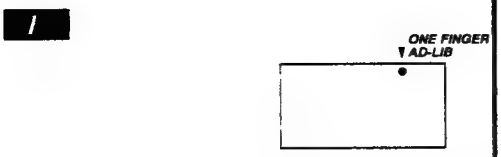
1. Use the **ACCOMP. STYLE** button and the **SELECTOR** buttons to select a Style. Next, press the **ONE FINGER AD-LIB** button. The small lamp at the top of the display (labelled ONE FINGER AD-LIB) will light up.
2. Now, press and hold down one of the keys in the ONE FINGER AD-LIB section of the keyboard (shown in the drawing at left). By holding down a single key, you can play an entire ad-lib phrase! Try other ONE FINGER AD-LIB keys. Note that each key plays a different phrase and that some keys use different sounds than other keys.
3. **Adding Auto-Accompaniment**
   Press the **START/STOP** button. The Style you selected will begin to play.
   Listen closely! Notice that the auto-accompaniment chords are changing automatically. The keyboard has been designed so that each Style is accompanied by an appropriate progression of chords that plays automatically.
4. Now, hold down one of the keys in the ONE FINGER AD-LIB section of keyboard (try to press the key on one of the main beats of the accompaniment).
   The ad-lib phrase will play. If you continue to hold the AD-LIB key down, you'll notice that the phrase changes automatically with the chord progression!
5. To change the preset chord progression, play any chord on the Lower Keyboard. This will override the preset chord progression.
   Then, the ONE FINGER AD-LIB phrases will change to match your own chords.

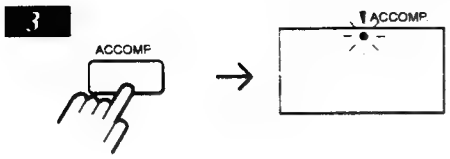
⚠ *IMPORTANT NOTE: When you turn ONE FINGER AD-LIB "on", specific sounds will automatically appear on the ONE FINGER AD-LIB phrases. These are preassigned at the factory. To select your own sounds, turn ONE FINGER AD-LIB "on" first and then select a sound. Your new sound will be assigned to all twelve ONE FINGER AD-LIB phrases.*

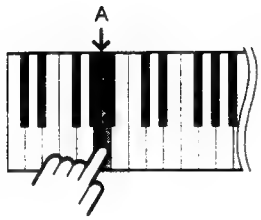
◆ **A Note About the ONE FINGER AD-LIB Chord Progressions**

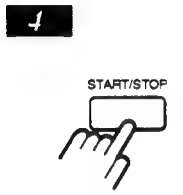
When you start the auto-accompaniment with ONE FINGER AD-LIB turned "on", the chord progression that plays is automatically in the key of C. For example, the progression for Style number 001 (JAZZ FUNK 1) is as shown at left.

C	C	F7	F7









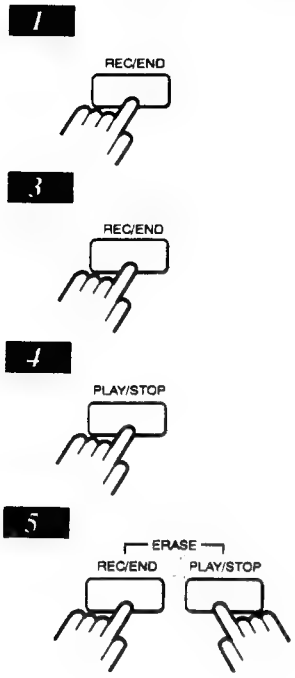
Changing Keys with ONE FINGER AD-LIB

What if you wanted the chord progression for JAZZ FUNK 1 to be in the key of "A"? You can change it! Follow this procedure:

1. Be sure that the small lamp at the top of the display (labelled ONE FINGER AD-LIB is lit).
2. Make sure the auto-accompaniment is stopped (use the START/STOP button if necessary).
3. Press the **ACCOMP.** button until the small lamp at the top of the display (labelled ACCOMP.) flashes.
   Then play an "**A**" in the Lower Keyboard as shown in illustration at left.
4. Then, press the **START/STOP** button to start the auto-accompaniment. The chord progression will now be in the key of "A" as shown at left.

To play in the key of "G", just repeat the four steps above playing a "G" key instead of the "A" key in Step 3.

Using The Real-Time RECORDER



This section will show you how to record the songs you perform using the keyboard's RECORDER feature. Here are the steps:

1. Press the **REC/END** button (which will not light). You will hear the sound of the metronome.
2. Start playing. Everything you play, including ONE FINGER AD-LIB phrases and changes in Sounds or Styles, will be recorded just as you played them. That's what "Real-Time" means. What you play is what you get.
3. When you are done with your song, press the **REC/END** button once again. The recording process will end.
4. Now, play the song back. Press the **PLAY/STOP** button (which will not light). The song you just recorded will begin to play. To stop the song without listening through to the end, press the **PLAY/STOP** button once again.
5. To record a different song, you must first erase the song currently in memory. To erase the current song, press the **REC/END** button while holding down the **PLAY/STOP** button. The song will be erased instantly.

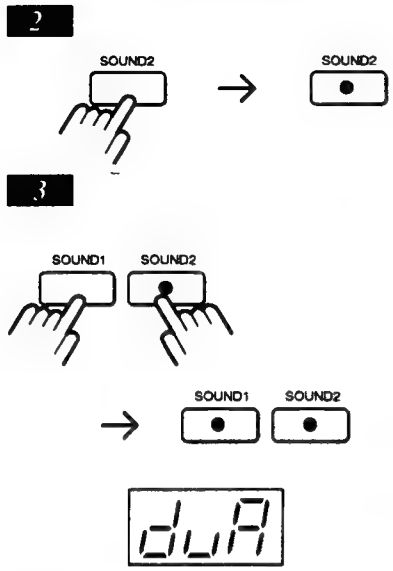
Tempo information will not be recorded by the RECORDER. This allows you to record songs at a slow tempo and play them back at a faster tempo.

Once the memory capacity of the recorder is reached, the recorder will automatically stop recording.

Congratulations!

You've finished learning the Basic Operations of your keyboard.
We trust that this first section has given you a good basic knowledge of the X40-D's powerful features. But you've only just begun to explore the full capability of your keyboard!
The Advanced Operation section will show you how much more can be done with this powerful instrument.

■ Advanced Use of Sounds:
◆ Combining Two Sounds



As a first step in this Advanced Operation section, try combining two of the sounds listed in the keyboard's SOUND LIST for a rich DUAL sound effect.

1. First, select any sound using the SELECTOR buttons. For this example, choose sound number 001 (GRAND PIANO).
2. Next, press the **SOUND 2** button. The button will light up. Now, select sound number 054 (VOICE OOHS) for our example.
3. Press both the **SOUND 1** and **SOUND 2** buttons simultaneously. Both buttons will light up and the display should change to read "dUA", which is short for "Dual". When you play the keyboard, you will hear the combination of sounds 001 and 054, GRAND PIANO and VOICE OOHS.

◆ Adding Effects

Your keyboard has a variety of effects which can add realism or excitement to your selected sound.

a) **STEREO CHORUS:**
Pressing the **STEREO CHORUS** button adds a deep stereo richness to the currently selected sound. Pressing the button a second time cancels the effect.

b) **DUET HARMONY:**
When the **DUET** button is pressed, the keyboard will add a harmonizing note to each melody note that is played on the keyboard, so you can enjoy a duet performance while playing only one melody note at a time. This function is most effective when used together with the auto-accompaniment function.
Pressing the button a second time cancels the DUET effect.

c) **TOUCH RESPONSE:**
When you press the **TOUCH RESPONSE** button, the light will go off and the "Touch Response" feature will be deactivated. Press the **TOUCH RESPONSE** button again and it will light up, indicating that Touch Response feature is restored.

All of the above effects can be applied only to SOUND 1 or SOUND 2, not to the auto-accompaniment parts (RHYTHM, BASS, or CHORD).

When you choose the DUAL or STEREO CHORUS effects, the number of notes that can be heard at the same time (polyphony) will be reduced.

The DUET effect cannot be activated when Auto 2 or Auto 3 is selected. (Refer to page A-2 for details).

Advanced Use of the Auto-Accompaniment Section:

The X40-D's Auto-Accompaniment section is one of the most powerful found on any portable keyboard. It has the capability of working in three different modes. In the Basic Operation section, we discussed only AUTO 1 mode, which is the standard operational mode for most portable keyboards. In this Advanced Operation section, we will introduce the remaining two modes: AUTO 2 and AUTO 3.

Having three different auto-accompaniment modes allows your keyboard to be enjoyed by players at all levels of musical ability from beginners to experienced professionals. Here is an outline of the three modes of auto-accompaniment that are available:

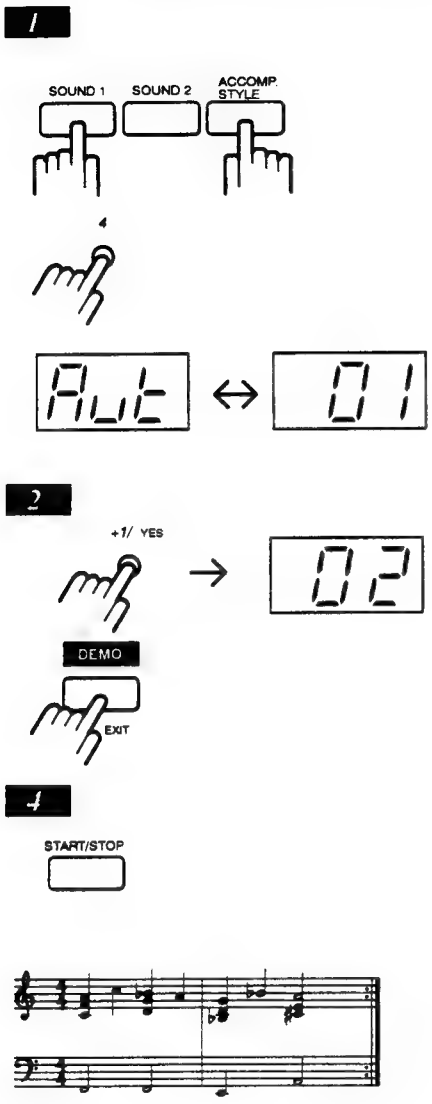
a) **AUTO 1:**
Lets you play single-finger or fingered chords with your left hand while playing the melody with your right. Your left-hand chords trigger the auto-accompaniment. Most players will use this mode. To review AUTO 1 operation, see the Basic Operation section.

b) **AUTO 2:**
Lets you trigger the auto-accompaniment using traditional, two-handed piano style playing. The lowest note of your left hand (in the Lower Keyboard) triggers the auto-accompaniment bass line. The notes you play with your right hand trigger the auto-accompaniment chords. With AUTO 2, you will hear both the right-hand chords that you play and the preset auto-accompaniment chords.

c) **AUTO 3:**
This mode is similar to AUTO 2 in that your lowest left-hand note triggers the auto-accompaniment bass line and your right-hand chords trigger the auto-accompaniment chords. The difference with AUTO 3 is that the preset auto-accompaniment chords do not play. You will hear only your own chords as part of the auto-accompaniment. This gives you total freedom to select more complex chords without clashing with any preset auto-accompaniment chords.

ONE FINGER AD-LIB is not operational when the keyboard is in AUTO 2 or AUTO 3.

◆ Explanation of AUTO 2



AUTO 2 is an advanced form of auto-accompaniment which lets you trigger the auto-accompaniment bass line and chords by playing in traditional piano style.

How is AUTO 2 different from AUTO 1? In AUTO 1, the auto-accompaniment chords are triggered only by the chords you play with your left hand. In AUTO 2, your right hand notes trigger the chords and your left hand triggers the bass line of the auto-accompaniment.

Why is AUTO 2 valuable? There are two primary reasons:

a) Many people feel more comfortable playing chords with their right hand than their left. AUTO 2 suits that playing style better than AUTO 1.

b) With certain songs, AUTO 2 allows you to play notes directly from sheet music and still trigger the auto-accompaniment. Some songs will work better than others using AUTO 2.
It is important to note that the preset auto-accompaniment chords continue to play in AUTO 2. That is, you will hear the actual chords you play with your right hand plus the preset chords of the auto-accompaniment. Remembering this will help you to see the difference between AUTO 2 and AUTO 3.

How AUTO 2 works:

1. With the accompaniment stopped, press the **SOUND 1** button four times while holding down the **ACCOMP. STYLE** button.
This procedure puts you into "SYSTEM" mode. The display will begin to flash alternately between "Aut" and the number "01". This shows that the auto-accompaniment is currently set to AUTO 1.
2. Press the **+1** button to change the number in the display to 02. This indicates that the keyboard is in AUTO 2. Press the **DEMO** button to escape from SYSTEM mode.
3. Select a Style using the **ACCOMP. STYLE** and **SELECTOR** buttons. This time, try Style number 003 (SOUL FUNK 1). Select sound 006 (E. PIANO 2) using the **SOUND 1** and **SELECTOR** buttons.
4. Press the **START/STOP** button. The accompaniment will start. Try playing the music at left along with the auto-accompaniment.
5. As you play the example, notice that you can hear both the notes you're playing and the chords of the preset accompaniment. As you begin to play more advanced chords, you may find that the preset accompaniment chords cannot follow you. At that point, explore AUTO 3.

Note: Here is some playing information about AUTO 2:

a) The auto-accompaniment chords change only when you press three or more keys (total) on the keyboard. See page Ap-1 for a chart of the chords that keyboard can recognize.

b) When you press just one key on the Lower Keyboard, only the auto-accompaniment bass part will change.

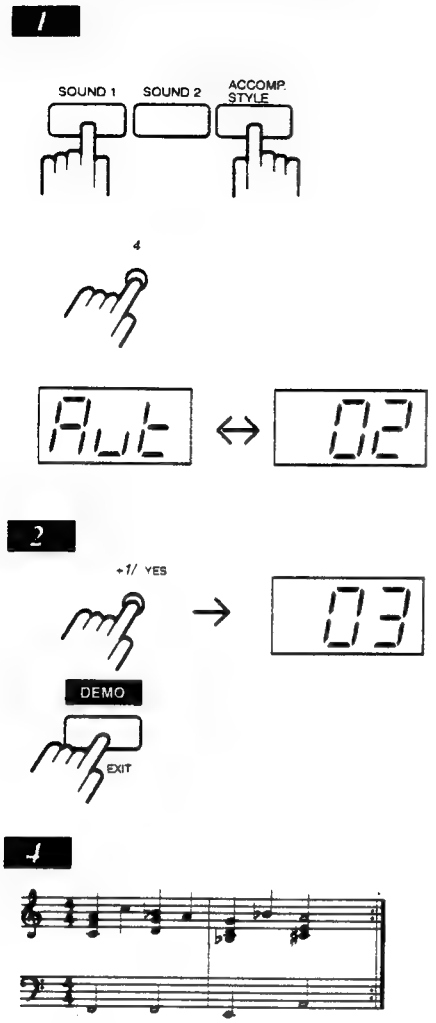
c) If you press more than one key on the Lower Keyboard, the bass part will respond to the lowest key pressed.

d) When only keys on the Upper Keyboard are played, pressing three or more keys will cause the auto-accompaniment chords to change. Pressing less than three keys in the Upper Keyboard will not affect the auto-accompaniment chords. This frees you to play single-note melody lines without changing chords.
When you're ready for a chord change, just play a complete chord along with your melody line.

e) When AUTO 2 is activated, neither ONE FINGER AD-LIB nor DUET will function.

f) **IMPORTANT:** AUTO 2 will remain activated until you return to SYSTEM mode to change it (even if you turn the keyboard off). To return to AUTO 1, repeat Step 1 above and use the −1 button to return to display to 01. Press the DEMO button to escape the SYSTEM mode.

◆ Explanation of AUTO 3



The key aspect of AUTO 3 is "freedom in choosing chords." Like AUTO 2, this mode lets you trigger the auto-accompaniment chords with your right hand and the bass line with the lowest note of your left hand. AUTO 3 is different in that the preset auto-accompaniment chords do not play. Rather, the chords you play with your right hand actually become part of the auto-accompaniment.

Furthermore, with AUTO 2, you are limited to only the chord forms that the keyboard can recognize as part of the auto-accompaniment system (see Page Ap-1).
If you play a chord that cannot be recognized in AUTO 2, the keyboard will do its best to match your chord, but you may not end up with the chord you wanted.
Also, your "played" chords and the "preset" chords may clash.

With AUTO 3, any chord form you play can be recognized and become part of the auto-accompaniment. You have total freedom in choosing chords. Since the preset accompaniment chords do not play, you won't need to worry about chords clashing as with AUTO 2.

AUTO 3 is perfect for people who want to sing a melody as they play a background auto-accompaniment. You simply play block chords with both hands while you sing. The auto-accompaniment will follow the chords you play and respond with full accompaniment.

Which AUTO Mode should I use?
Use AUTO 2 if you plan to use standard chords that can be recognized by the keyboard (see page Ap-1). With AUTO 2, the preset auto-accompaniment chords will provide good rhythmic and harmonic support for the standard chords you play with your right hand.

Use AUTO 3 when you plan to use complex chords that cannot be recognized by the keyboard. Your complex chords will become part of the auto-accompaniment, and the preset accompaniment chords (which do not play in AUTO 3) will not clash with chords you play with your right hand.

Using AUTO 3:

1. With the accompaniment stopped, press the **SOUND 1** button four times while holding down the **ACCOMP. STYLE** button.
   The display will begin to flash alternately between "Aut" and the number 01 (or 02 if you were previously in AUTO 2).
2. Press the **+1** button until the number in the display changes to 03. This indicates that the keyboard is in AUTO 3. Press the **DEMO** button to escape from SYSTEM mode.
3. If you haven't already done so in our AUTO 2 example, use the **ACCOMP. STYLE** and **SELECTOR** buttons to choose Style 003 (SOUL FUNK 1). Also, select sound 006 (E. PIANO 2) using the **SOUND 1** and **SELECTOR** buttons.
4. Press the **START/STOP** button. The Style will start. Try playing the music at left. The accompaniment will follow your playing.
5. Try playing one of your favorite songs (after selecting an appropriate Style) and sing the melody. Not every song will work with AUTO 3, but usually you'll get a pleasing result!

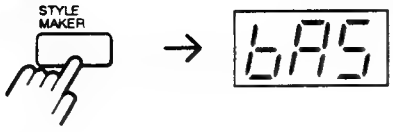
The playing information about AUTO 3 is the same as that of AUTO 2. Please refer to page A-3.

*Before moving on to the next section, repeat Step 1 above and use the **−1** button to return the display to "01". Press the **DEMO** button to escape the SYSTEM mode.*

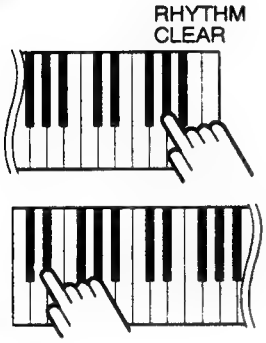
*Important: Always use the **DEMO** button to exit the SYSTEM Mode before you begin to play.*

■ Style Maker: Creating Accompaniment Styles

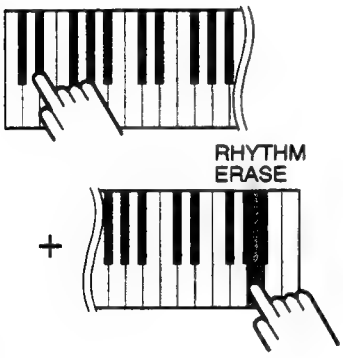
2



2-a



2-b



2-c

Have you ever wished you could take your own musical ideas and put together a dynamite auto-accompaniment style of your own? Now you can! Using the Style Maker feature, you can create your own Styles. This is an extremely powerful feature that offers you tremendous creative freedom!

1. Use the **SELECTOR** buttons to select a style. For this example, try the Style No. 033 (POP ROCK 1).
2. **First select the BASIC Pattern.**
   With the accompaniment turned "off", press the **STYLE MAKER** button (which does not light). The display will change to read "bAS", which is short for "Basic." This indicates that the BASIC Pattern has been selected.

   Now change the Rhythm (drum) part.
   Find the STYLE MAKER section at the right end of the keyboard which is identified by the heading STYLE MAKER above the keys. This section contains the "User Program" keys for changing accompaniment styles.

   Notice that there are two RHYTHM CLEAR keys in the STYLE MAKER section. That is because the Rhythm part is made up of two elements – the "Group A" Rhythm part and the "Group B" Rhythm part. The Group A Rhythm part is heard through the two smaller recessed speakers on the X40-D. The Group B Rhythm part is heard through the two larger speakers.

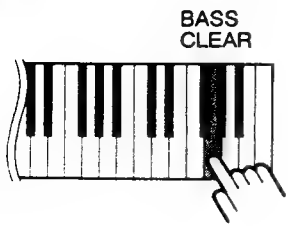
   (a) **Changing the Group B Rhythm Part**
   Press the G#5 key (labelled "Rhythm Clear") twice. You'll hear the metronome begin to play. The metronome is on if you can hear a high "wood block" sound on the first beat of each measure. The display will change to show the number of the POP ROCK Style (that is, number 033). Try adding the CLAP sound by pressing the D#1 key (which controls the CLAP sound) wherever it seems appropriate. Add other drum sounds to suit your musical taste.

   (b) If you make a mistake (for example, you put the claps in the wrong place), use the "Rhythm Erase" key (A5) to remove the mistake. Hold down the Rhythm Erase key (A5) while you press the "CLAP" key (D#1). All CLAP sounds will be instantly erased.

   (c) **Changing the Group A Rhythm Part**
   Press the D#5 key twice. The entire Group A rhythm part will be erased. Now, use the drum keys to rebuild the rhythm part. If you make a mistake, use the Rhythm Erase key (A5) to erase a particular sound as before.

⚠ *Three CLEAR keys at the left side of the STYLE MAKER section (C#5 to D#5) are used to create the Group A parts. Five CLEAR keys from E5 to G#5 are used to create te Group B parts.*

3



2. Changing the Bass part.
   Now, move on to the bass part. Press the "BASS CLEAR" key (G5) twice. The bass part should disappear and the display will change to show the number 039. This indicates that sound 039 (SYNTH BASS 1) is currently being used for the bass part in this Style.
   Use the notes from C1 to C5 to create a new bass part. To use a sound other than SYNTH BASS 1 for the bass part, select a sound you prefer using the SELECTOR buttons. The new sound number will appear in the display.
3. Last, let's change the Chord part.
   The chord part consists of five elements (Chords 1/2 of Group A and Chords 1/2/3 of Group B). Press the CHORD 3 CLEAR key twice. The number 058 should appear in the display. This indicates that sound number 058 is being used for the Group B Chord 3 part. Use the keys from C1 to C5 to add some notes to this part.
   To use a sound other than Sound 058, select the sound you want using the SELECTOR buttons.

   As you've probably observed by now, pressing the STYLE MAKER "CLEAR" keys twice erases all notes from that part, allowing you to rebuild it from scratch. The three CLEAR keys at the left side of the STYLE MAKER section (C#5 to D#5) are used to create the Group A parts. the five CLEAR keys from E5 to G#5 are used to create the Group B parts. Use the procedure described above to create any of the other parts of an accompaniment. For example, press the Group A "Chord 1 Clear" key twice. The entire Group A Chord 1 part will be erased. Then, create a new Group A Chord 1 part to suit your musical taste. Use the C, E and G keys from C1 to C5 to create Chords 1/2 parts

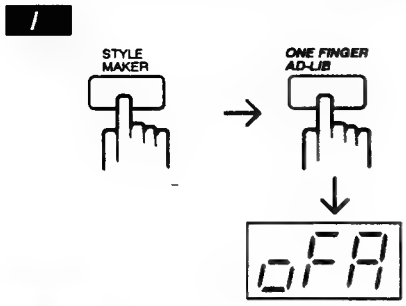
   When using STYLE MAKER, always create styles in the key of C. Once your new Style is stored, the auto-accompaniment system of the X40-D will automatically modify the Style you create to suit any chord.

◆ Storing Your New Patterns

Now that you've created an entirely new Style, store it in the keyboard's User Memory using the following procedure:
With your new Style in final form, press the **STYLE MAKER** button once again (we assume you haven't pressed it since the beginning of this Style Maker section). The Style you just created will stop to play and it will be stored as Style 100 (USER).

Programmable ONE FINGER AD-LIB:

◆ Creating Phrases



With the keyboard's programmable ONE FINGER AD-LIB capability, you have the power to create your own ONE FINGER AD-LIB phrases. Here's how:

1. Press the **STYLE MAKER** button. Then, press the **ONE FINGER AD-LIB** button. The letters "oFA" (which are short for "One Finger Ad-Lib") will appear in the display. The Ad-Lib phrase for the "F3" key will also begin to play. You can store your own phrases on four "programmable Ad-Lib keys" from F3 to G#3.
2. Select the phrase you want to modify by pressing the key for that phrase from among the four "programmable Ad-Lib keys" from F3 to G#3.
   The Ad-Lib phrase you've selected will begin to play. The sound number for that phrase will be shown in the display. When you're ready to erase the selected phrase, press the **PHRASE CLEAR** (C6). The phrase will disappear.
3. "Playing In" the New Phrase.
   Use the keys from C1 to A5 to play a new phrase. If you find that this range isn't high or low enough to play the Ad-Lib phrase you have in mind, press the **OCTAVE SHIFT** key (B5). This key can be used to shift the range played by the keys (from C1 to A5) up or down an octave. Pressing the **OCTAVE SHIFT** key one time causes the keyboard to shift up one octave. Pressing it a second time causes the keyboard to shift down one octave. Pressing it a third time restores the keyboard to the normal pitch.
   Now, use the SELECTOR buttons to select a sound for the phrase.
4. Entering Additional Ad-Lib Phrases:
   To enter a second Ad-Lib phrase, make sure that your first customized Ad-Lib phrase (from Step 3 above) is finished. Now, press the **POINT SELECT** key (A5).
   This tells the keyboard that you are done with the current phrase. Now, repeat Steps 2 and 3 above selecting a different phrase to modify. When you are done with this second phrase, press the **POINT SELECT** key again. You can continue this process until all four programmable Ad-Lib keys have been programmed with your own customized phrases.

◆ Storing Phrases

Before storing your new Ad-Lib phrases, note that all Ad-Lib phrases must be stored with the Styles that accompany them. Therefore, you may want to make changes to the Style now before storing the new phrases.

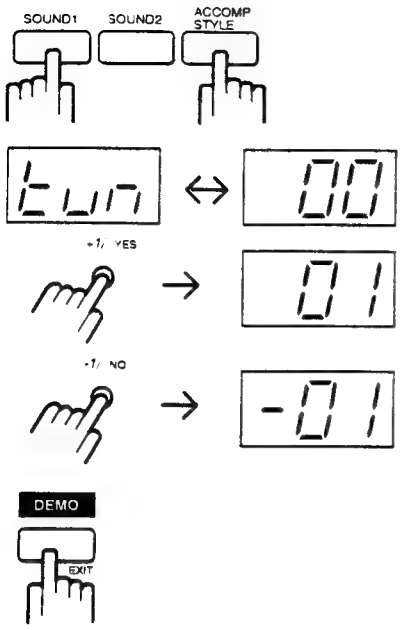
You can change up to four ONE FINGER AD-LIB phrases for any given Style. When you're finished changing the phrases, store them for future use using the procedure below:

5. Press the STORE button (same as the STYLE MAKER button). The complete set of Style Patterns and new ONE FINGER AD-LIB Phrases will be stored as Style number 100 (USER).

> ⚠ *The X40-D automatically modifies the Ad-Lib phrases you create using the Programmable feature to suit any chord. When you hear your phrases after storing on a USER location, you may notice that they sound different from your original creation.*

■ Using the SYSTEM/MIDI Functions:

1



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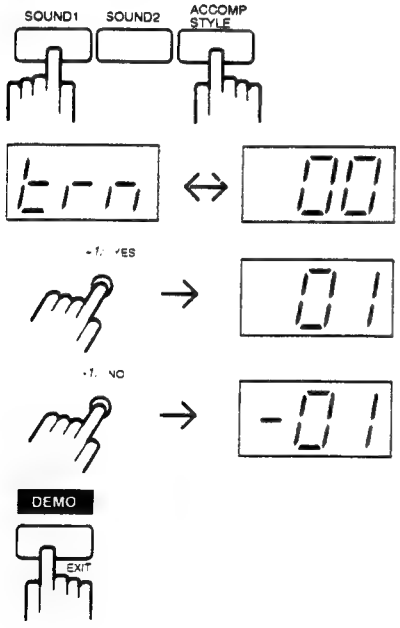


In this section, we will describe the keyboard's SYSTEM/MIDI functions which deal with the overall control of the keyboard. The SYSTEM/MIDI functions are assigned the following "function numbers":

1. MIDI MODE SELECTION
2. TUNING CONTROL (Pitch Adjustment)
3. TRANSPOSE (To Change Keys)
4. AUTO MODES: Selecting from the three types of auto-accompaniment. See the section on "Advanced Use of Auto-Accompaniment" starting on page A-3.
5. TOUCH TYPE SELECT: Allows you to select from two different touch settings.
6. PEDAL FUNCTION SELECT: Allows you to assign a function to the PEDAL jack.
7. TRANSMIT CHANNEL SELECT
8. LOCAL CONTROL ON/OFF
9. ACCOMPANIMENT MIDI OUT ON/OFF
10. DRUM SEND CONTROL
11. EXCLUSIVE SEND

◆ Navigating in SYSTEM/MIDI Mode

The X40-D uses either of two different methods to access SYSTEM/MIDI functions. Both are described below. PLEASE READ THE INFORMATION BELOW. IT WILL SAVE YOU TIME!

METHOD 1: Press the **SOUND 1** button as many times as is necessary while holding down the **ACCOMP. STYLE** button to reach your desired function. The function values and abbreviations will appear in the display.

METHOD 2: Press the **ACCOMP. STYLE** and **SOUND 1** buttons simultaneously one time and use the SELECTOR buttons to directly enter the number of your desired SYSTEM/MIDI function (for example, if you want the TRANSPOSE function, you would press 3). See above for the list of SYSTEM/MIDI function numbers.

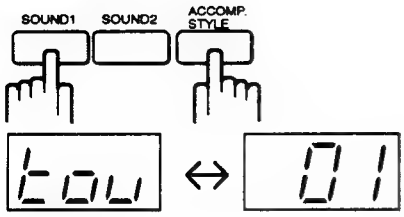
If you know the function number, Method 2 is faster. If you're unsure of the function number, Method 1 is better, since it scrolls through all the SYSTEM/MIDI functions in order. The following instructions all use Method 1.

1. TUNING CONTROL
   With the accompaniment stopped, press the **SOUND 1** button twice while holding down the **ACCOMP. STYLE** button.

   The display should begin to flash, alternately showing the letters "tun" (short for TUNE) and the number 00. If you press the **+1** button once, the number in the display will change to read 01 and the pitch will raise slightly.
   If you press the **−1** button instead, the number will change to −01 and the pitch will drop slightly. You can use the TUNE function to adjust the keyboard's pitch within a range of −08 to 07.
   Press the **DEMO** button (which will not light) to leave the SYSTEM/MIDI mode.

2. TRANSPOSE
   With the accompaniment stopped, press the **SOUND 1** button three times while holding down the **ACCOMP. STYLE** button.
   The display will begin to flash, alternately showing the letters "trn" (short for TRANSPOSE) and the number 00. If you press the **+1** button, the number in the display will change to read 01 and the pitch will raise by a half step.
   If you press the **−1** button instead, the number in the display will change to read −01 and the pitch will drop by a half step.
   You can use the TRANSPOSE function to adjust the keyboard's pitch by one full octave upward or downward (that is, from −12 half steps to +12 half steps).
   Press the **DEMO** button to leave the SYSTEM/MIDI mode.

3



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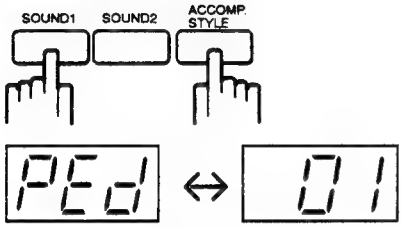


3. **TOUCH TYPE SELECT**
Your keyboard lets you select from two different "touch" settings which are numbered as follows:
01: Offers a NARROW dynamic range with less contrast between loud and soft playing.
02: For a WIDE dynamic range, providing greater contrast between loud and soft playing.

With the accompaniment stopped, press the **SOUND 1** button five times while holding down the **ACCOMP. STYLE** button. The display will alternate between "tou" and "01". The "tou" stands for "TOUCH TYPE" and "01" lets you know that the current touch setting is "01". Use the **+1/−1** buttons to select either of the above two touch settings. Press the **DEMO** button to leave the SYSTEM mode.

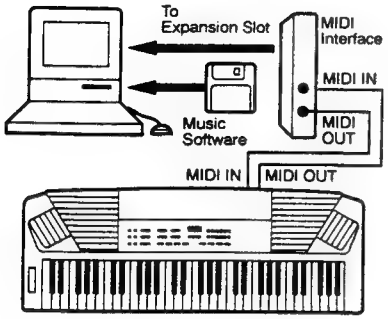
4. **PEDAL FUNCTION SELECT:**
Allows you to assign a function to the PEDAL jack. The function numbers are as follows:
01: Sustain pedal
02: Pedal functions like the SYNC./FILL-IN button on the front panel

With the accompaniment stopped, press the **SOUND 1** button six times while holding down the **ACCOMP. STYLE** button. The display will alternate between "PEd" and "01" letting you know that the current PEDAL Function is 01 (SUSTAIN). If you connect the optional footswitch (model F-1, available separately) to the PEDAL jack, the footswitch will control the SUSTAIN function. Use the **+1/−1** buttons to select functions for the PEDAL jack. Press the **DEMO** button to leave the SYSTEM mode.

■ Using the MIDI Functions

This section will outline the X40-D's MIDI functions which allow you to connect the keyboard to other MIDI instruments. The General MIDI capability of the X40-D will offer you tremendous power and flexibility in a MIDI environment.

◆ Connecting the Keyboard to Other MIDI Instruments

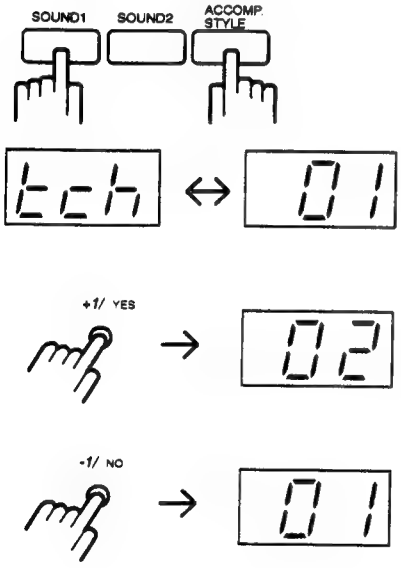


To transmit MIDI data from your keyboard to another MIDI instrument, purchase a MIDI cable and use it to connect the MIDI OUT jack of your X40-D to the MIDI IN jack of the other instrument. Make sure that the MIDI "transmit" channel on your X40-D matches the MIDI "receive" channel of the other instrument (the procedure for setting the Transmit channel is described in the next section).

To receive MIDI data from another MIDI instrument to your X40-D use the MIDI cable to connect the MIDI OUT jack of the other instrument to the MIDI IN jack of your X40-D. Make sure that the MIDI "receive" channel on your X40-D matches the MIDI "transmit" channel of the other instrument.

To connect your X40-D to a computer, purchase a MIDI Interface and make the connections as shown in the diagram at left.

◆ MIDI Transmit ("tch") Channel Select



Allows you to select the transmit channel for your keyboard. The abbreviation "tch" stands for "transmit channel".
With the accompaniment stopped, press the **SOUND 1** button seven times while holding down the **ACCOMP. STYLE** button.
The display should alternate between "tch" and "01". This means that the current MIDI Transmit channel is 1. Press the **+1** button to change the 01 to 02. This changes the keyboard's MIDI Transmit channel to channel 2. Now, use the **−1** button to return to channel 1. Use this procedure to select any MIDI channel from 1 to 16. Press the **DEMO** button to leave the SYSTEM/MIDI mode.

⚠ *When the "ACC" (described later) is set to "on", the "tch" will not apply. The preset "accompaniment send" channels will override the "tch" channel.*

⚠ *The Sound 1 and Sound 2 parts use a different MIDI transmit channel. If "tch" is set to 1, the Sound 1 will transmit on channel 1. Sound 2 is assigned to the "tch +1" channel. So if "tch=1", Sound 2 is assigned to MIDI channel 2. If tch=2, then Sound 1 will be assigned to MIDI channel 2 and Sound 2 will be assigned to MIDI channel 3.*

◆ MIDI MODE SELECTION

The X40-D's MIDI implementation is the most powerful and flexible ever designed for a portable keyboard. You can select from two separate MIDI modes: General MIDI Standard mode and Pro Multi-Timbral mode.
In both MIDI modes, the X40-D offers features which meet or exceed the demanding General MIDI specification:

- 128 sounds arranged in General MIDI order;
- Internal drum/percussion sounds;
- 28-note polyphony (Eight notes of polyphony are reserved for the drum tracks with the remaining 20 notes used for all other instruments.)
- 16-channel multi-timbral capability

◆ Description of MIDI Modes

The two MIDI modes differ primarily in the way that they transmit and receive data via MIDI. The following descriptions will help you understand the differences.

◆ GENERAL MIDI STANDARD MODE

General MIDI Standard mode (which we'll call "GMStd mode") is used primarily to play back General MIDI song data through your X40-D. Here are the key features of "General MIDI Standard" mode:

- The keyboard will receive MIDI data on all 16 MIDI channels with channel 10 reserved as the drum track channel. Use the DRUM SET sound (129) to transmit drum sounds.
- Only the SELECTOR and SOUND 1/2 buttons will be active. No other buttons will function.
- You can transmit data on any MIDI channel, but only one channel at a time. The "tch select" function in SYSTEM/MIDI mode is used to select the transmit channel.
- You cannot send auto-accompaniment data via MIDI. Only the actual "played" notes will be transmitted.
- The 16-channel multi-timbral capability allows you to play General MIDI song data from external sequencers or computers.

The procedure for recording in General MIDI Standard mode is described later in this manual. However, you may find Pro Multi-Timbral mode (described below) to be easier to use in many MIDI recording situations.

◆ PRO MULTI-TIMBRAL MODE

Pro Multi-Timbral mode (which we'll refer to as "Pro" mode) is perhaps a more flexible mode for MIDI recording purposes. The key elements of "Pro" mode are:

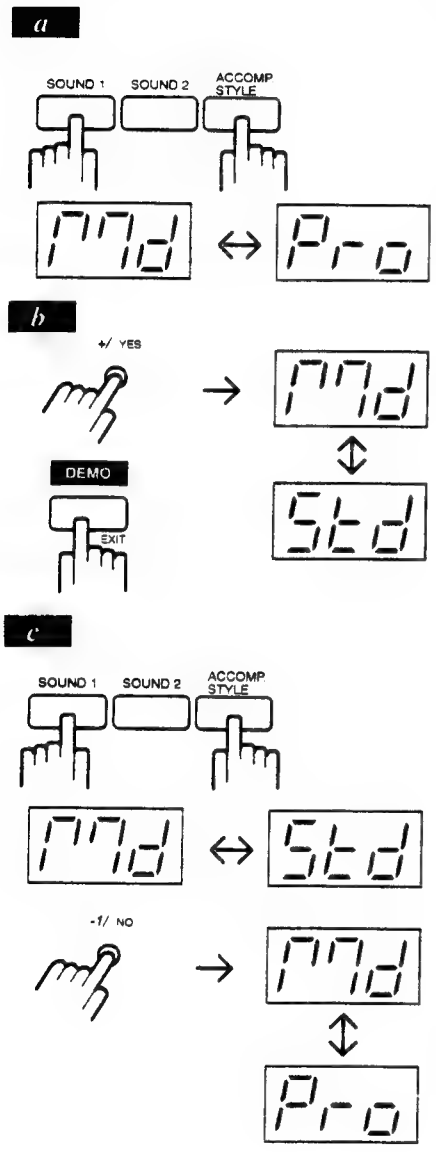
- The keyboard will receive data on all 16 MIDI channels. Channels 10 – 14 are reserved for drum data. All other channels are "free" to receive any part.
- All buttons will operate in normal fashion.
- You can transmit auto-accompaniment data via MIDI on multiple MIDI channels simultaneously. To do this, the "Accompaniment MIDI Out" function must be on. The transmit channel assignments are as follows:

Part	Channel Assignment
Live Melody	Channels 1 and 2
Bass	Channels 3
Chord 1 (Group B) Chord 1 (Group A) Chord 2 (Group B) Chord 2 (Group A) Chord 3 (Group B)	Channel 4 Channel 5 Channel 6 Channel 7 Channel 8
Drums/Percussion	Bass Drum = Channel 10 Snare Drum = Channel 11 Other = Channels 12 and 14

When "Accompaniment MIDI Out" is off, the keyboard will transmit on only one channel ("tch") at a time and the MIDI recording procedure is identical to that described later for "GMStd" mode (above).

• Drum data can be sent in any of three ways:
(1) When "Accompaniment MIDI Out" is off, use the DRUM SET sound (129) to transmit drums on the current "tch" channel.
(2) When "Accompaniment MIDI Out" is on, use the auto-accompaniment function to send drum data on channels 10 through 14.
(3) When "Accompaniment MIDI Out" is on, use the "Drum Transmit Channel Select" function in SYSTEM/MIDI mode to send the entire auto-accompaniment drum part on MIDI channel 10 only.

◆ Selecting MIDI Modes



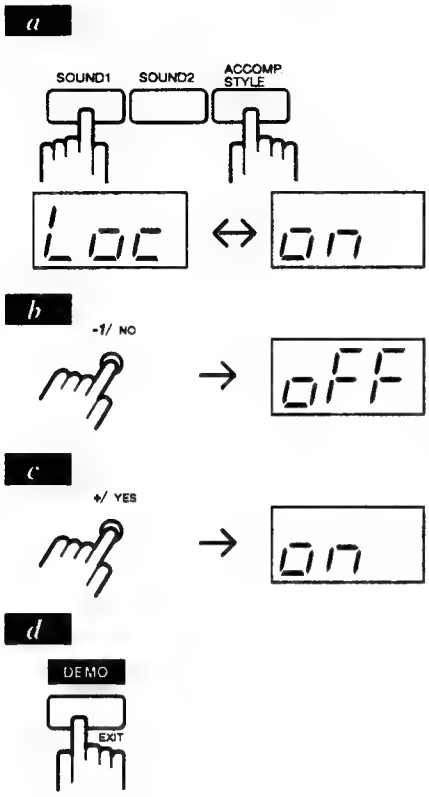
To select Pro Multi-Timbral mode, use the following procedure:

a) PRO MULTI-TIMBRAL MODE
With the accompaniment stopped, press the **SOUND 1** and **ACCOMP. STYLE** buttons simultaneously.
The display should flash alternately between "Md" and "Pro". The "Md" represents "Md" which is short for "MIDI" and the "Pro" indicates that Pro Multi-Timbral mode is selected.

b) GENERAL MIDI STANDARD MODE
Next, try pressing the **+1** button. The display will change to flash alternately between "Md" and "Std". This indicates that the General MIDI Standard mode is selected. To leave the SYSTEM/MIDI mode, press the DEMO button.

c) RETURNING TO PRO MULTI-TIMBRAL MODE
With the accompaniment stopped, press the **SOUND 1** and **ACCOMP. STYLE** buttons simultaneously.
The display should flash alternately between "Md" and "Std". Press the **−1** button. The "Std" will change to "Pro" indicating that Pro Multi-Timbral mode is selected once again. To leave the SYSTEM/MIDI mode, press the **DEMO** button.

◆ Setting Local Control ON/OFF



Using Local Control, you can determine whether or not your keyboard produces sound when the keys are played. Why would you want to turn off the keyboard's sound? When using MIDI, your X40-D can operate as a "controller" used to control the sound of another MIDI-equipped keyboard. In this situation, you may want to play the keys on your X40-D but hear only the sound of the other keyboard (sometimes referred to as the "slave" keyboard) that is being controlled through MIDI.

When Local Control is "ON", you will hear the X40-D's sound when the keys are played. When Local Control is "OFF", MIDI note information is still sent via MIDI as you play, but no sound is heard through the keyboard's speakers.

To select Local ON/OFF, use the following procedure:

a) LOCAL CONTROL ON
With the accompaniment stopped, press the **SOUND 1** button eight times while holding down the ACCOMP. STYLE button.
The display should flash alternately between "Loc" and "on". The "Loc" stands for Local Control; and the "on" indicates that Local Control is set to "on".
In this setting, you will hear sound when you play the keys on your keyboard.

b) LOCAL CONTROL OFF
Next, press the **−1** button. The display will change to flash alternately between "Loc" and "OFF". This indicates that the Local Control is off and no sound will be heard when the keys are played. Remember, MIDI data is still being sent when you play the keys. So, if your keyboard is connected to another keyboard through MIDI (with the X40-D's MIDI OUT jack connected to the other keyboard's MIDI IN jack with a MIDI cable), you should hear notes sounding on the other keyboard as you play keys on your X40-D.

c) RETURNING TO LOCAL CONTROL ON
To turn Local Control "ON" once again, simply press the **+1** button. If your other keyboard is still connected via MIDI, you should hear both keyboards produce sound as you play keys on your X40-D.

d) LEAVING THE LOCAL CONTROL ON/OFF MODE
To leave the Local Control mode, press the **DEMO** button

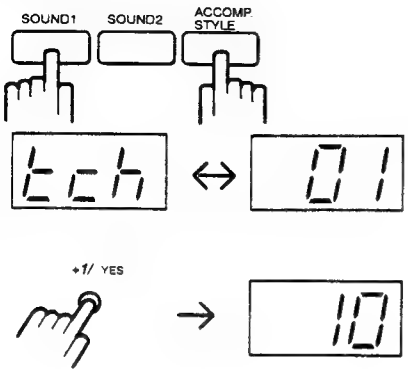
⚠ *You cannot set Local Control "off" and Accompaniment MIDI OUT mode to "on" at the same time. This situation will be described later in this manual.*

◆ Creating Songs With An External Sequencer

When using your keyboard's MIDI functions, you can create a song with 16 parts. These 16 parts can all play together from the beginning of the song to the end, just as the melody you play by hand and the auto-accompaniment part can play together from the start of a song to its end. Here's how to start creating songs on your keyboard in the two MIDI modes using an external sequencer:

◆ Recording in General MIDI Standard Mode

5



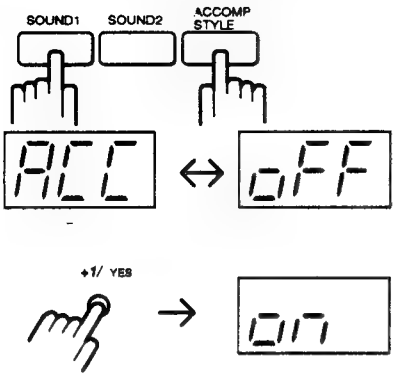
1. First, connect the X40-D to a sequencer (see the earlier section on connecting your keyboard to other MIDI devices).
2. Use the procedure described earlier to select General MIDI Standard mode.
3. Set LOCAL control to the "off" position.
4. Turn on the "Echo Thru" or "Thru" function in your sequencer.
5. Use the procedure described earlier to change the MIDI Transmit channel ("tch") to 10. This will allow you to record a drum part first.
   Be sure to press the DEMO button to exit SYSTEM/MIDI mode.
6. Check to be sure that the SOUND 1 button lamp is lit (if not, press it now). Then, select sound number 129 using the SELECTOR buttons. Start the sequencer recording and use the keys of your X40-D to record a drum part.
7. Now you're ready to create other parts. Change the Transmit channel from 10 to 1. The display should change to alternate between "tch" and "1". Be sure to press the DEMO button to leave the SYSTEM/MIDI mode.
8. When you press any key, the keyboard will play whatever sound is currently selected. Use the SELECTOR buttons to select the sound of your choice. Then, start the sequencer and record the next part. You should be able to hear the drums you recorded earlier as you play this new part.
9. To record other parts, use the same steps to change the MIDI Transmit channel to any channel from 2 through 16 (except channel 10 which you used for drums). Then, select the sound you will use for the new part and record it as before. Of course, if you change the sound you are using in the middle of the recording, the sound change will also be recorded. Therefore, it is not necessary to assign three solos – a sax solo, a guitar solo, and an organ solo to three separate channels. You can record them all on one channel by simply changing the sound as you record.
10. If your sequencer allows you to "channelize" or change the MIDI channel for any track after you've recorded it, you may be able to save time in recording. After recording the drums on channel 10, set the MIDI Transmit channel to 01. Record the next track on channel 1. After recording, change the channel on this track to channel 2. This frees channel 1 to record another track which you can then assign to channel 3. Keep transmitting data on channel 1 and then assigning the data to a different channel. This will help you to avoid having to change the MIDI Transmit channel before recording each new track.

◆ Recording in Pro Multi-timbral Mode

In General MIDI Standard mode, your X40-D cannot send (transmit) "automatic" information (auto-accompaniments, Duet and ONE FINGER AD-LIB) or recorder data via MIDI. In Pro Multi-Timbral mode, you can enable the keyboard to send this information. Before proceeding, please do the following:

1. Make sure LOCAL CONTROL is turned "on" (especially if you had turned it off for the previous example). Turn off the "Echo Thru" or "Thru" function in your sequencer.
2. Use the procedure described earlier to select Pro Multi-Timbral mode. The display should change to flash alternately between "Md" and "Pro".

◆ Accompaniment MIDI Out



The keyboard's ability to send "automatic" data via MIDI is controlled by a SYSTEM/MIDI function called "Accompaniment MIDI Out". This function must be "on" to allow automatic data to be sent via MIDI. Here is the procedure:

With the accompaniment stopped, press the **SOUND 1** button nine times while holding down the **ACCOMP. STYLE** button.
The display should flash alternately between "ACC" and "oFF". The "ACC" stands for "Accompaniment MIDI Out". The "oFF" signifies that the keyboard is not currently sending "automatic" information via MIDI. Press the +1 button.
The "oFF" should change to read "on". This indicates that the auto-accompaniment data will now be transmitted via MIDI.

⚠ *You cannot set the Accompaniment MIDI Out mode to "on" when Local Control is in the "off" mode.*

⚠ *When the "ACC" is set to "oFF", the keyboard will transmit data on only one MIDI channel. (referred to as "tch")*

◆ Recording in "Pro" mode

With "Pro" mode selected and "Accompaniment MIDI Out" on, start the sequencer recording and begin to play using auto-accompaniment or One Finger Ad-Lib. On playback, your performance should sound exactly the same as it did when you recorded it.

◆ Sending Recorder Data to an External Sequencer via MIDI

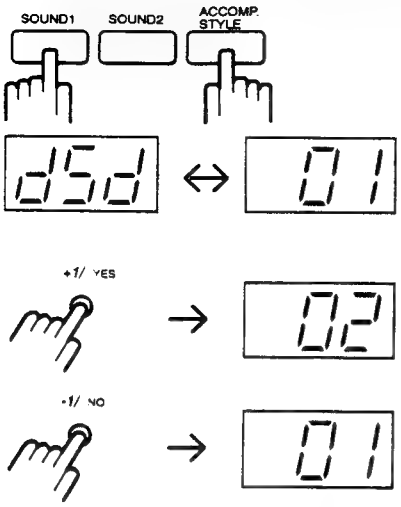
The songs stored in the Recorder of your X40-D can also be sent to an external sequencer via MIDI. This is an extremely powerful feature, allowing your keyboard to operate as a "workstation". You can record songs on your X40-D anywhere and then transfer the song data to your external sequencer later.
To send Recorder data via MIDI, connect the MIDI jacks of your X40-D to the MIDI jacks of your external sequencer (as shown earlier in this manual). Make sure that the "Accompaniment MIDI Out" function is "on" as described above. Then, press the PLAY/STOP button on the Recorder. As your song plays, the note data will be sent via MIDI.

◆ MIDI Channel Assignments in "Pro" mode

In "Pro" mode, the keyboard will receive data on all 16 MIDI channels.
Channels 10 – 14 are reserved for drum data. All other channels are "free" to receive any part.
When the "ACC" is set to "on", the keyboard will transmits data on several MIDI channels. The channel assignments are:

SOUND 1 ..... Channel 1
SOUND 2 ..... Channel 2
BASS ..... Channel 3
CHORDS ..... Channels 4 through 8
RHYTHM (Drums) ..... Channels 10 through 14

◆ Drum Send Control



As shown above, when the "ACC" is set to "on", the drum parts will be transmitted via MIDI channels 10 through 14. You can set the keyboard to send all drum data via MIDI channel 10 only using the following procedure:

1. With the accompaniment stopped, press the **SOUND 1** button ten times while holding down the **ACCOMP. STYLE** button.
   The display should flash alternately between "dSd" and "01". The "dSd" stands for "Drum Send" and the "01" indicates that the drum part is being sent on MIDI channels 10 through 14. Use the **+1** button to change the number in the display to read 02. Now, the entire drum part will be sent on MIDI channel 10. When you use the **−1** button to change the number in the display back to "01", the drum part will be sent on MIDI channels 10 through 14 as before. Press the **DEMO** button to leave the SYSTEM/MIDI mode.

◆ Creating Accompaniment Styles

Suppose you want to create a complete Accompaniment Style on an external sequencer (such as KAWAI's professional MIDI sequencer, the Q-80EX) and store it in the keyboard's User Memory for use with the auto-accompaniment feature. Here's how it can be done:

■ Recording Auto-Accompaniment Styles Created with an External Sequencer for Use with the X40-D

1. First, program the Accompaniment Style into your external sequencer.
2. Next, make sure that the external sequencer's MIDI Transmit channels match the Rhythm, Chords and Bass channels of your X40-D.
3. Use the **TEMPO DOWN** button to change the display until it reads SYC (short for "SYNC").
4. Prepare your keyboard to record the Style into User Memory. Record the Group B Rhythm part first. Begin by pressing the STYLE MAKER button just as you did when you created a Style with the Style Maker feature. Then, select the Group B Rhythm part by pressing the G#5 key twice. Now the keyboard is set to record the Style from the external sequencer. When you start the Style from the external sequencer, the X40-D will begin recording that part automatically in "SYNC" with the sequencer.
5. Record the other parts one-at-a-time, making sure that the MIDI Transmit channels are matched with the appropriate channels on your keyboard. Repeat Step 4 above to prepare the keyboard for recording. Select the appropriate part, and start your external sequencer.
6. Once the complete Style has been recorded, you're ready to store the Style in the keyboard's User Memory.
7. Store your new Style using the STYLE MAKER button (as described on Page A-6 of this manual).

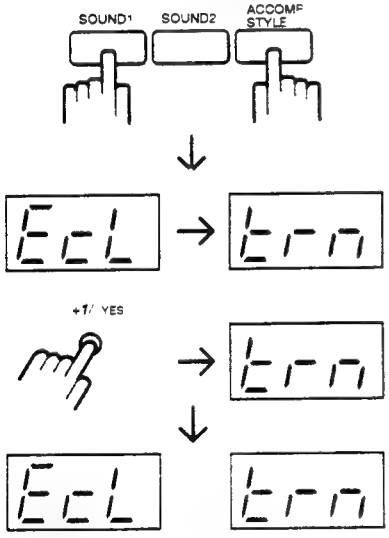
◆ Creating ONE FINGER AD-LIB Phrases

You can also use the same procedure just described to create ONE FINGER AD-LIB phrases on an external sequencer and store them in the keyboard's user memory.

■ Recording ONE FINGER AD-LIB Phrases Created with a Sequencer for Use with the X40-D

1. First, program a ONE FINGER AD-LIB phrase into your external sequencer.
2. Prepare the Keyboard to Record:
   - Use the **ACCOMP. STYLE** and **SELECTOR** buttons to select the Style you want as background for your ONE FINGER AD-LIB phrases.
   - Make sure that the MIDI Transmit channel of your sequencer matches the keyboard's MIDI Receive channel for SOUND 1 (that is, channel 1).
   - Press the **STYLE MAKER** button and then ONE FINGER AD-LIB button just as you did when you created ONE FINGER AD-LIB phrases earlier in this manual.
   - Press the One Finger Ad-Lib key on which you want to store the new phrase.
3. Record the Phrase
   Use the **TEMPO DOWN** button to change the display so that it reads "SyC" (which is short for "SYNC"). Now, when you start playing the phrase from the sequencer, it will be recorded as the ONE FINGER AD-LIB phrase for the ONE FINGER AD-LIB key that is currently selected.
4. By selecting different ONE FINGER AD-LIB keys, you can record up to four different phrases from the external sequencer. When you are through recording new phrases, use the "storing" procedure (see page A-7) to store the new Ad-Lib phrases in User Memory along with the corresponding Style.

◆ Sending Auto-Accompaniment Data and ONE FINGER AD-LIB Data to an External Sequencer



As you know, it is possible to store the Styles you create yourself in keyboard's User Memory. However, the number of Styles you can store is limited to two. To increase your library of Styles, the X40-D allows you to store your Styles and ONE FINGER AD-LIB phrases as "MIDI System Exclusive Data" in an external sequencer (such as the Kawai Q-80, a data filer, or some other external MIDI device) using the "data dump" function.
With the accompaniment stopped, press the **SOUND 1** button 11 times while holding down the **ACCOMP. STYLE** button.
The display will change to alternate between "ECL" (short for Exclusive) and "trn" (short for "transmit"). Press the **+1** button to send the data. The display will read "trn" for a few moments, then change to alternate between "ECL" and "trn". Your data transmission is now complete.

◆ Sending Stored Data Back to the Keyboard from an External Sequencer:

No special command is necessary to perform a data dump into the X40-D. Simply command your external sequencer to transmit data to the keyboard while the auto-accompaniment and recorder on the keyboard are both turned off. The keyboard will receive this data automatically.

These are a few examples of the ways in which the keyboard's MIDI functions can be used. There are certainly many other interesting and enjoyable things you can find to do with MIDI. Its possibilities are limitless!

■ MULTIMEDIA OVERVIEW

All of the information needed to utilize your X40-D in a multimedia environment has been described in the Basic and Advanced Operation Sections of this manual. However, we have included this brief Multimedia Overview section to help you "piece the multimedia puzzle together." Throughout this section, you will be referred to earlier sections of the manual for specific details on a particular feature or procedure.

◆ Defining Multimedia

Definitions of the term "multimedia" are numerous and varied. For our purposes here, let's define multimedia as "any computer-based presentation that merges sound and visual images for the purpose of communication."
Examples of multimedia presentations would be:

- A self-running trade show presentation mixing video/speech/music.
- An in-office business presentation mixing slides/speech/music.
- Interactive adventure video games with graphics/speech/sound effects/and musical score.
- A home-produced video with original music.
- An interactive shopping center kiosk integrating video/speech/music.

You can see that the applications for multimedia are limited only by one's imagination. Multimedia is within the reach of anyone with the creativity and vision to integrate sound and pictures via the computer.

◆ The Components of Multimedia

Given that an overview of video production and computer graphics is far beyond the scope of this manual, we will restrict the discussion to the elements of multimedia production which relate to music and your X40-D.

What equipment will you need to create or adapt music in a multimedia setting? Here is a basic component list:

- Computer
- MIDI Interface or MIDI-Capable Sound Card
- MIDI Cables
- Sequencer Software Compatible with Your Computer and Interface
- MIDI-equipped Sound Generator
- Controller Keyboard
- Speakers

Let's briefly discuss each of these components:

Computer
Since you're interested in multimedia, you most likely own a computer already. If not, make sure you purchase one with extra card slots and enough space on the hard-drive to store your sequencer software and MIDI files.

MIDI Interface
Next you'll need a MIDI interface which translates computer language into MIDI language. While some computer manufacturers build a MIDI interface right into their computers at the factory, most do not. MIDI interfaces can be purchased at many computer stores and most music stores where professional MIDI equipment is sold. Some MIDI interfaces connect to your computer's serial port, while others mount directly into one of the card slots on your computer. Some audio game cards offer MIDI upgrade kits which make them MIDI-compatible. Above all, make sure that the MIDI interface you purchase is compatible with the sequencer software that you plan to use (see below).

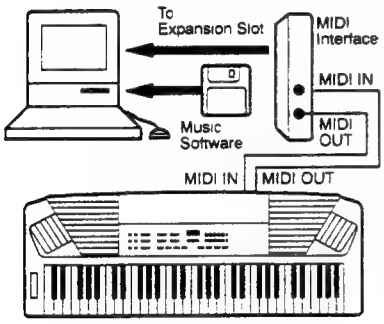
MIDI Cables
MIDI cables are used to connect your MIDI interface to the MIDI jacks on the back of your X40-D. You'll need at least two to get started.
MIDI cables are available at most music stores.

Sequencer Software
Sequencer (or MIDI recording) software can turn your computer into a multi-track recording studio. Every major brand of computer has an array of sequencer software titles available covering a wide range of capability and price. Again, music stores and computer stores are your best source of information on available software. Determine first what you want to accomplish musically, then choose the software that seems best suited to help you reach your goal. As mentioned above, make sure that your software is compatible with the MIDI interface you currently own or plan to purchase.

Also, for multimedia applications, it's valuable to have sequencer software which can "sync" (or synchronize) to external time code (either SMPTE or MIDI Time Code). It's even better if the software can also "write" time code to tape. In some cases, you may have to purchase a separate "sync" box to make synchronization possible. This sync capability will be essential if you need to synchronize music to picture by yourself. It's less important if you are working with a production company that can do the synchronization for you.

X40-D: Sound Generator, Controller Keyboard, Speakers
Notice that we've put all these components into one section. Normally, you would purchase a separate sound generator (or tone module) to produce high-quality instrument sounds, a controller keyboard to enter the musical notes into your sequencer software, and external amplified speakers to hear the end product. But your X40-D performs all the functions of these three components. Your keyboard is a 16-bit General MIDI sound module, a 61-note controller keyboard, and a "Super 3D" speaker system — all in one.

◆ A Realistic Multimedia Example



If you're planning fairly high-level multimedia projects, we assume that you've got some knowledgable and experienced people to help you through the multimedia maze. In light of this, we've chosen an "entry level" example for people who are exploring multimedia in a home setting without assistance.

(1) Say you've done an experimental video on your hi-fi video camcorder and you'd like to add music to support the visual images.
(2) Your "production studio" should be complete with computer, MIDI interface, MIDI cables, sequencer software and X40-D. After you've made all connections as shown in the illustration at left, be sure that your sequencer software is "communicating" properly with your keyboard (refer to your software owner's manual for set-up and test procedures).
(3) If you want a "music bed" (continual backgroud music) under your video, you have two choices — write your own music or use production music that is already pre-programmed in Standard MIDI File Format. Many companies offer "production music files" which you can load right into your sequencer software and playback on your keyboard. Since your X40-D conforms to the General MIDI Standard, virtually all production song files can be used. These song files can be edited to fit your needs. If you want to compose your own music bed, follow the recording steps shown in the "MIDI Operation" section of this manual.
(4) Once your music bed is finished, you can either record it on the audio tracks of your video (using the Line Out jacks on the back of your keyboard) or use synchronization to play the music "live" on your keyboard along with the video. To "sync" live music and video, you'll need to "write" (or record) time code on one of the stereo audio tracks. Then, assuming that your sequencer can "read" (or synchronize to) time code, you can connect this time code track to your sequencer and control the live music from your X40-D (any narrative or dialogue recorded with the video can still be heard on the remaining audio track). The end result will be a multimedia production — visual picture, narrative or dialogue from one audio track, and live music from your sequencer and keyboard (controlled by time code on the other audio track).
(5) Composing music to match the action of your video is a tougher assignment. In this case, the "sync" capability is essential. You should write time code to an audio track at the beginning. Then set up your sequencer to "sync" with the time code track. As the video plays, the sequencer should be set to record as you follow the action. You'll actually be composing music to picture.

◆ Other Possible Applications

Here are some other possible uses for your X40-D in a multimedia setting:

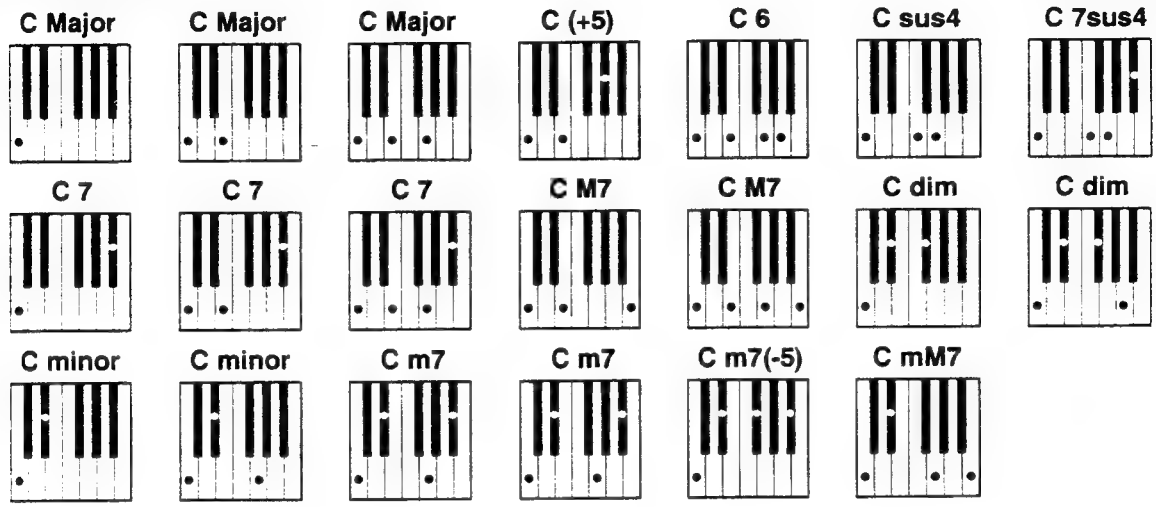
- Creating General MIDI/Standard MIDI File sequences (songs or music beds) for use with full motion video playback software and multimedia authoring programs.
- Using your X40-D to play the musical score for a computer video game that supports the General MIDI standard.
- Creating General MIDI/Standard MIDI File sequences at home which can be carried (on floppy disk) to a professional audio/video production house for final recording (using high-end General MIDI synthesizers or sampling keyboards) as part of a multimedia business presentation.
  This illustrates that General MIDI files are "transportable" from your X40-D to any other General MIDI instrument.

This section is obviously not a detailed "step-by-step" procedure for learning multimedia production (that would take a book!), but we hope it has helped you understand the ways that your X40-D can be a valuable tool in the multimedia environment. The more you explore your keyboard, the more you'll realize how really powerful it is.

Enjoy the adventure of exploring music ... and thank you again for choosing Kawai!

Chord Table

The following are chord "forms" which can be recognized by your X40-D. They are called "forms" because they can be easily transposed into any key by following the same basic formula in each key. The chord forms below are all in the key of C:



◆ Transposing Chord Forms into Other Keys

The following steps will help you to transpose the above chord forms into other keys.

(1) LEARN THE NOTE NAMES

First, make sure you know all the names on your keyboard.
The illustration at right shows you the note names:

(2) ROOT NAMES

Take a good look at the chord forms above in the key of C. Notice that one particular note appears in every chord. That is the "root" note C. This leads us to RULE 1 in using auto-accompaniments:

"EVERY CHORD FORM MUST CONTAIN THE ROOT NOTE."

When you're in the key of C, every chord form you play must contain the root note C. In the key of F, every chord form must contain an F. And so on.

(3) WHAT IS AN INTERVAL

Look closely at the "C Major" chord form that has three notes (C-E-G) marked with dots. Note the spacing between the C and the E. Starting with the first note above C (meaning C#), count the number of notes it takes to reach the next note in the chord form, (E). When you include all black and white keys, the E is exactly four notes above the root C. This spacing is called the "interval" between C and E. Now, count the interval between E and G. Your count should show that G is exactly three notes above E. So, for a three-note "C Major" chord form, start with the root note (C). Then, count up four notes to E and another three notes to G. These intervals (which make up a "formula") will always give you a "C Major" chord.

(4) TRANSPOSING CHORD FORMS

In any key, these chord form intervals will be the same. For example, to play a three-note "F-Major" chord form, start by holding down the root note "F". Now, use the same "formula" you used above.
Count four notes up to A. Then count up another three notes to C. The complete "F-Major" chord is F-A-C. These are exactly the same intervals that formed the "C-Major" chord above. RULE 2 follows from this example:

"CHORD FORMS CONTAIN THE SAME INTERVALS IN ANY KEY."

Every chord form in the chart above can be transposed into a different key by determining the intervals between notes and counting upward (or downward if it's easier) from the root note to match those intervals in the new key.
Essentially, you just learn the "formula" and apply it to each new key.

◆ Helpful Hints for Beginners

As you've studied the chord forms above, you've probably noticed that there is often more than one way shown to play the same chord. For instance, there are three different ways to play a "C-Major" chord (using 1, 2, or 3 notes). This has been done to accommodate different playing styles and make the X40-D flexible for all levels of musical ability. But if you're a brand new beginner, the discussion of chord forms and intervals may be confusing. The quick hints below will show you the EASIEST way to play the basic chords:

(1) BASIC CHORD TYPES

There are several basic chord types that appear in most music. Below is a list of these chords and the way they would appear as chord symbols in the key of C:

MAJOR:	C, C Major, C Maj
MAJOR SEVENTH:	C Major7, C Maj7, CM7
MINOR:	Cm, C minor, Cmin
MINOR SEVENTH:	Cm7, C minor 7, Cmin7
DOMINANT SEVENTH:	C7

(2) QUICK CHORD FORMULAS

To play any chord, first identify the "root" note. If the chord is "Fm7", the root note is "F". Now use these simple formulas to play chords:

MAJOR CHORDS:
Play the root note only. If the chord is "G-Major", just play "G".

MAJOR SEVENTH:
Play the root note plus one note below the root. If the chord is "D Maj7", play the root note D plus the "Csharp" just below it. For "F Maj7", play the root note F plus the E below it.

MINOR CHORDS:
Play the root note plus the third note above the root. Make sure you count black and white keys. For "Dmin", play the root note D plus the third note above, which is F. For "Gmin", play G and Bflat.

MINOR SEVENTH:
This one gets tricky. Play the root note, plus the third note above the root and the second note below the root. For "Dm7", play the root note D, the third note above (F) and the second note below the root (C). If this is too difficult, just use the MINOR CHORD formula shown above.

DOMINANT SEVENTH:
Play the root note plus the second note below the root. For "G7", play the root note G and the second note below it (F). For "C7", play C and B-flat.

Kawai hopes these quick formulas will help you to get started. But we hope you won't stop here. We encourage you to study the wide range of chord forms that your X40-D will recognize and learn to play them in all keys.
You'll find that the more time you invest in learning chords, the more musical enjoyment you'll receive from your keyboard.

Enjoy the "adventure" of learning music! And thank you for choosing Kawai!

■ Specifications

X40-D	
KEYBOARD:	61 keys, Full-Size (Touch Response)
SOUNDS:	129
ACCOMPANIMENT STYLES:	100 Styles
POLYPHONY:	Maximum 28 Notes
EFFECTS:	Stereo Chorus, Duet, Touch Response On/Off
ACCOMPANIMENT CONTROLS:	Start/Stop, Intro/Ending, Sync./ Fill-In, Tempo
RECORDER:	Rec/End, Play/Stop
PROGRAMMING:	Style Maker, ONE FINGER AD-LIB Phrases
VOLUME CONTROLS:	Master Volume, Accomp. Volume
Volume PART ON/OFF:	One Finger Ad-Lib, ACCOMP.
MISCELLANEOUS CONTROLS:	Demo, Super 3D
SPEAKERS:	12 cm x 2, 8 cm x 2
RATED VOLTAGE:	10 Volts DC. Works with six size C dry cell batteries or power adaptor (PS-102 or PS-101)
ACCESSORY JACKS:	MIDI In/Out, Pedal, Output 1, Output 2, DC In (10 v), Stereo Phones
ACCESSORIES:	Music rack

■ Drum Assignments

Key	MIDI Key No.	Instrument	Key	MIDI Key No.	Instrument
B0	35	Bass Drum 1	D#4	75	Claves
C1	36	Bass Drum 2	E4	76	Hi Wood Block
C#1	37	Side Stick	F4	77	Low Wood Block
D1	38	Acoustic Snare	F#4	78	Mute Ciuca
D#1	39	Hand Clap	G4	79	Open Ciuca
E1	40	Electric Snare	G#4	80	Mute Triangle
F1	41	Low Floor Tom	A4	81	Open Triangle
F#1	42	Closed Hi-Hat	A#4	82	Brush Short
G1	43	High Floor Tom	B4	83	Brush Long
G#1	44	Pedal Hi-Hat	C5	84	E. Bass Drum
A1	45	Low Tom	C#5	85	E. Closed Hi-Hat
A#1	46	Open Hi-Hat	D5	86	E. Snare Drum
B1	47	Low Mid Tom	D#5	87	E. Open Hi-Hat
C2	48	Hi Mid Tom	E5	88	E. Cowbell
C#2	49	Crash Cymbal 1	F5	89	E. High Conga
D2	50	Hi Tom	F#5	90	E. Mid Conga
D#2	51	Ride Cymbal	G5	91	E. Low Conga
E2	52	Chinese Cymbal	G#5	92	Concert Cymbal
F2	53	Ride Bell	A5	93	Gated Snare Drum
F#2	54	Tambourine	A#5	94	C. HiHat (Hi Tune)
G2	55	Splash Cymbal	B5	95	A. Snare (Hi Tune)
G#2	56	Cowbell	C6	96	E. Snare (Hi Tune)
A2	57	Crash Cymbal 2	C#6	97	A. Snare (Sub)
A#2	58	Vibraslap	D6	98	E. Snare (Sub)
B2	59	Ride Cymbal 2	D#6	99	Pedal HiHat (Hi tune)
C3	60	Hi Bongo	E6	100	Ride Cymbal (Hi Tune)
C#3	61	Low Bongo	F6	101	Ride Bell (Hi Tune)
D3	62	Mute Hi Conga	F#6	102	Tambourine (Hi Tune)
D#3	63	Open Hi Conga	G6	103	Cowbell (Hi Tune)
E3	64	Low Conga	G#6	104	Ride Cymbal 2 (Hi Tune)
F3	65	High Timbal	A6	105	High Timbale (Hi Tune)
F#3	66	Low Timbal	A#6	106	Low Timbale (Hi Tune)
G3	67	High Agogo	B6	107	Cabassa (Hi Tune)
G#3	68	Low Agogo	C7	108	Maracas (Hi Tune)
A3	69	Cabasa	C#7	109	E. Close Hi Hat (Hi Tune)
A#3	70	Maracas	D7	110	E. Snare Drum (Hi Tune)
B3	71	Short Whistle	D7	111	E. Snare Drum (Sub)
C4	72	Long Whistle	E7	112	E. Cowbell (Hi Tune)
C#4	73	Short Guiro	F7	113	Gated Snare (Hi Tune)
D4	74	Long Guiro	F7	114	Gated Snare (Sub)

X40-D MIDI IMPLEMENTATION CHART
GENERAL MIDI STANDARD MODE

Date: 1993 May
Version: 001

Function...		TRANSMITTED	RECEIVE	REMARKS
Basic Channel	Default	1	1 – 16	
	Changed	1 – 16		
Mode	Default	X	Mode 3	
	Message	X	X	
	Altered	*****		
Note Number		O	0 – 127	
	True Voice	24 – 108	0 – 127	
Velocity	Note On	0 – 127	O	
	Note Off	9n00	X	
After Touch	Key's	X	X	
	Ch's	X	X	
Pitch Bend		O	*O	Except Channel 10
Control Change	1	X	O	Modulation *1)
	6	X	O	Data entry
	7	X	O	Volume
	10	X	O	Panpot *1)
	11	X	O	Expression
	64	X	O	Hold *1)
	98,99	X	O	NRPN LSB, MSB *2)
	100,101	X	O	RPN LSB, MSB *1), *3)
	120	X	O	All sounds off
	121	X	O	Reset all controllers
Prog Change		O	O	Except 10ch.
	True#	0 – 127	0 – 127	
System Exclusive		X	X	
Common	: Song Pos	X	X	
	: Song Sel	X	X	
	: Tune	X	X	
System Realtime	: Clock	X	X	
	: Command	X	X	
Aux Messages	: Local	X	X	
	: All note off	X	O	
	: Active sense	O	O	
	: Reset	X	X	

NOTES: 1) Except 10 ch.
2) NRPN – #0=Speaker Select
#1=Drums Panpot Select
3) RPN – #0=Pitch Bender Sensitivity
#1=Master Fine Tuning
#2=Master Coarse Tuning. Values are given by Data Entry

Mode 1: OMNI ON, POLY
Mode 2: OMNI ON, MONO
Mode 3: ONMI OFF, POLY
Mode 4: OMNI OFF, MONO

O : YES
X : NO

X40-D MIDI IMPLEMENTATION CHART
PRO MODE

Date: 1993 May
Version: 001

Function...		TRANSMITTED	RECEIVE	REMARKS
Basic Channel	Default	1	1 – 16	
	Changed	1 – 16		
Mode	Default	X	Mode 3	
	Message	X	X	
	Altered	******	******	
Note Number		0	0 – 127	24 – 108 keyboard
	True Voice	0 – 127	0 – 127	0 – 127 ACC. SEND
Velocity	Note On	0 – 127	○	
	Note Off	9n00	X	
After Touch	Key's	X	X	
	Ch's	○	○	
Pitch Bend		○	*○	* Except Channel 10 – 14
Control Change	1	X	○	Modulation *3)
	6	X	○	Data entry
	7	X	○	Volume
	10	X	○	Panpot *3)
	11	X	○	Expression
	64	X	○	Hold *3)
	98,99	X	○	NRPN LSB,MSB *4)
	100,101	X	○	PRN LSB, MSB *5) *3)
	120	X	○	All sounds off
	121	X	○	Reset all controllers
Prog Change		○	○	Except 10 – 14ch.
	True #	0 – 127	0 – 127	
System Exclusive		○	○	
Common	: Song Pos	X	X	
	: Song Sel	X	X	
	: Tune	X	X	
System Realtime	: Clock	○ *1)	○ *2)	
	: Command	Start, Stop	Start, Stop *6)	
Aux Messages	: Local	X	X	
	: All note off	X	○	
	: Active sense	○	○	
	: Reset	X	X	

NOTES: 1) When the RHYTHM is running
2) When it is SYNC.RECORDING through MIDI.
3) Except 10 – 14 ch.
4) NRRN – #0=Speaker Select
5) RPN #0=Pitch Bender Sensitivity
6) SYNC mode are push START Switch
#1=Drums Panpot Select

Mode 1: OMNI ON, POLY
Mode 2: OMNI ON, MONO
Mode 3: OMNI OFF, POLY
Mode 4: OMNI OFF, MONO

○ : YES
X : NO

KAWAI

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200 Terajima-cho, Hamamatsu, Japan

OM804Y
Printed in Japan